

CANADIAN GEOGRAPHICAL JOURNAL

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FEBRUARY 1947

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SEA-CONDITIONED NOVA SCOTIA

THE COCOS ISLANDS

CROPS IN ABUNDANCE

HEALTH CONDITIONING

BY

GENERAL  ELECTRIC

GERMICIDAL LAMPS



Hospitals are using Germicidal Lamps to disinfect the air in nurseries, surgeries and contagious wards.



In schools where G-E Germicidal Lamps are installed the number of air-borne disease cases has been sharply reduced.



In modern restaurants, glasses are made sterile by Germicidal Lamps in storage cabinets.

G-E Germicidal Lamps help maintain good health by generating ultra-violet rays indoors to destroy germs. Tests have proved that colds and infections can be cut down by reducing the number of air-borne germs, spores and viruses in a room. Germicidal lamps therefore can contribute greatly to better health by reducing chances of infection in schools, offices, theatres, hospitals . . . wherever people congregate.

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HEAD OFFICE - TORONTO

★

Quiz... FOR CANADIANS

★

Every Canadian today is asking himself this question:

"How much more will it cost me to live tomorrow?"

The answer depends on us . . . Living costs should not increase . . .

IF—we all keep on resisting the temptation to try to get more than our fair share of available goods.

IF—we continue to restrict our purchases to what we really need.

IF—we keep on producing as much as we can at as low a price as we can.

IF—we continue to support to the full our Government's wise measures of control.

IF—we continue to walk the middle road, the road of moderation in all things—in our thinking, in our actions and in our pleasures.

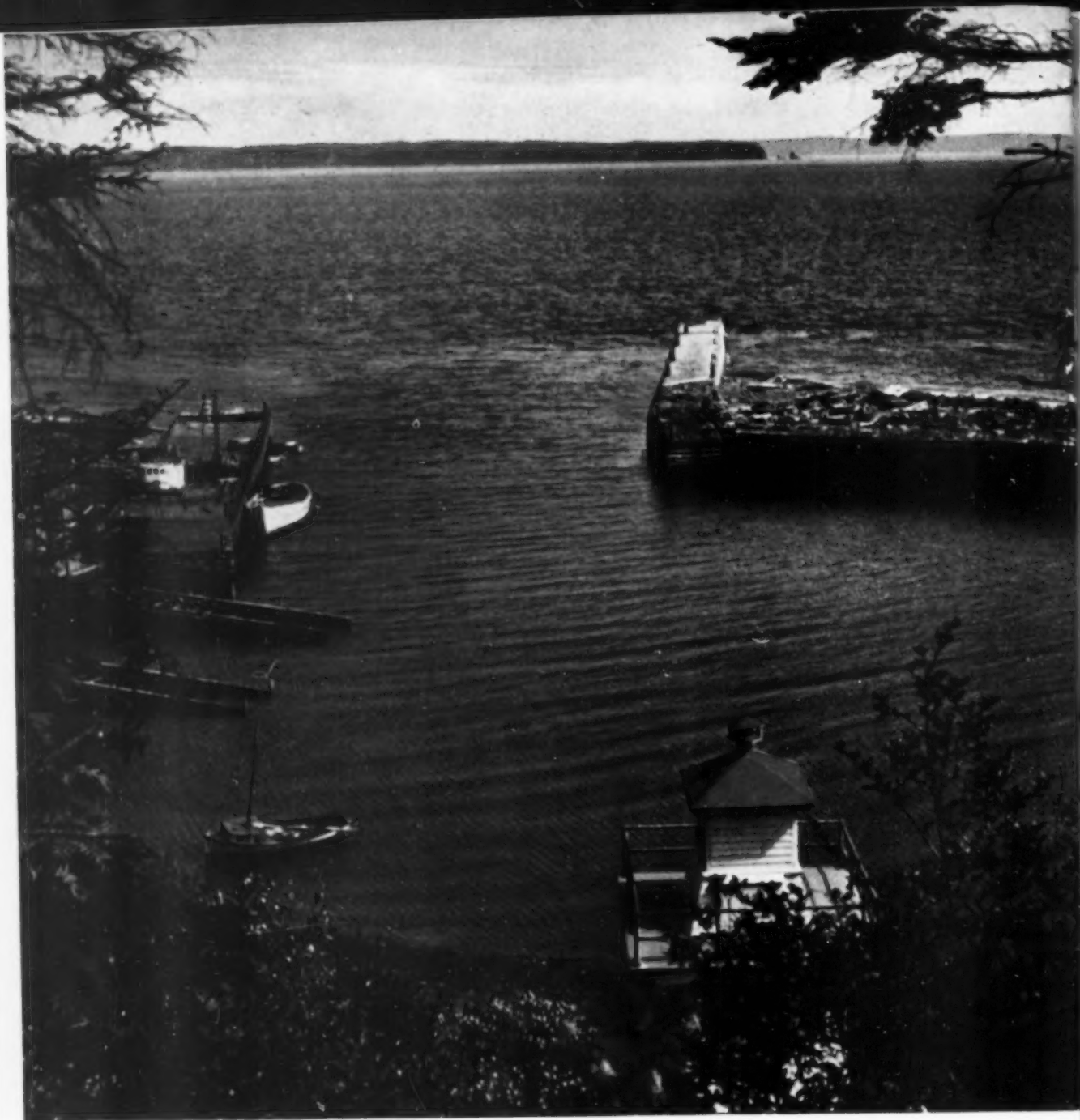
IF—as The House of Seagram has always suggested, we continue to *think of tomorrow and practice moderation today!*



Men who Think of Tomorrow

Practice Moderation Today!

THE HOUSE OF SEAGRAM



Kodachrome courtesy Nova Scotia Information Bureau

Port Greville on Minas Channel, one of the many spots in Nova Scotia off the main highway, is a delightful place in summer. Here the height of enjoyment is always within easy reach—whether one finds it in climbing a hilltop, in resting on the beach after a plunge into invigorating salt water, or in spending the morning with an inshore fisherman, hand-lining from his dory.

Inland, a mosaic of planted fields and pasture lands leads back to the hills and provocative wood trails. Seaward, one looks across to Cape Split's rugged outline.

CANADIAN GEOGRAPHICAL JOURNAL

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EDITOR'S NOTE-BOOK VIII

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Sea-Conditioned Nova Scotia

by WILL R. BIRD

Photos by G. Hedley Doty, Official Photographer, Nova Scotia Government, except where otherwise credited.

NOVA SCOTIA is rediscovered during every war. The peninsula is a long wharf jutting into the Atlantic, the embarkation point for those going overseas; the landing port for casualties arriving home. Situated nearer the Motherland—and hostile territory—than any other part of the mainland of North America, Nova Scotia serves as a western anchor in the defence of the North Atlantic.

The Encyclopaedia Britannica records that Nova Scotia was discovered just five years after Columbus made his first voyage of discovery. John Cabot, sailing under an

English flag, with a charter of the English king, made the first landfall on the continent. The Encyclopaedia states: "After being fifty-two days at sea, at five o'clock on Saturday morning, June 24, they reached the northern extremity of Cape Breton Island. The royal banner was unfurled, and Cabot took possession of the country in the name of King Henry VII. The soil being found fertile and the climate temperate, Cabot was convinced he had reached the north-eastern coast of Asia, whence came the silks and precious stones he had seen at Mecca. Cape North was named Cape Discovery, and as

Top left:—Old French shore

Bottom left:—The wharf at Meteghan

At top:—Shag's Harbour
C.P.R. photos

the day was the festival of St. John the Baptist, St. Paul Island, which lies opposite, was called the island of St. John."

Each year an increasing number of visitors discover Nova Scotia. They drive in by car or arrive by boat, and are amazed to find that the province is not a part of Newfoundland or Labrador, but a country three to six degrees nearer the Equator than the most southerly point in Great Britain. It is a land where life is good, the French Acadie and the Gaelic New Scotland. An aura of romantic history hangs over every old town and hamlet and is enhanced by the appearance of Nova Scotia's own flag, dating back to 1621, flying from public buildings. Nova Scotia has the proud distinction of being the only province of Canada and the first colony of Great Britain to possess a flag of its own.

Visitors are impressed with four features that seldom fail to induce vows to return again and again to Nova Scotia.

The Influence of the Sea

First, they are intrigued by the influence of the sea. They breathe sea air that blends with breezes fragrant with spruce. They find that no matter where they go within the province they are never more than an hour's ride from the sea, its restless tides and never-ceasing battle with rocky headlands. They go for boat rides and find it a rich experience to skirt granite promontories strewn with skeletons of forgotten wooden ships, and to tack into quiet harbours under leaning sails.

Some consider the Bay of Fundy the most unique marine feature. They never tire of its unconventionally coloured waves and its acrobatic tides which rise and fall as much as fifty and sixty feet. They watch a vast body of surging water, red or violet in hue, in no time at all, become interminable mud flats, with ships left high and dry, and brushwood fish-weirs seeming strange animal pens along the sand instead of traps for fish. Inland rivers become canyons of bright clay.

Other visitors prefer the rugged Atlantic coast with the water iridescently green and blue instead of russet and amethyst as in the Bay. They like to see the open Atlantic pounding granite shores or creeping between

islands up deep inlets to meet forest-born rivers. Nova Scotia's South Shore is interesting with new craft being born of yellow timbers in the shipyards, with chugging lobster and tuna boats, with long fishing nets drying in the sun, stretched like great spider webs from posts along the roadside. Surf crashes on sandy crescents behind which dream brackish lagoons. Velvety fields reach down to the water. Bright cottages perch among sea-freshened gardens. Plodding oxen drag creaking carts along coastal lanes. There are the salty odours of the sea, the scent of ripening clover and the rich aroma of pine needles. Often the woods of birch and maple and hemlock and spruce separate villages and there are muskegs and blueberry barrens littered with boulders and in summer abloom with Indian pear, azalea, fire weed and laurel.

Visitors love the little fishing villages that rim the coast line. High banks sweet with clover lure them to bask in sunshine and watch the boats beat out to sea, every stitch of canvas piled upon them. Or days may be spent with the fisher folk, listening to their odd tales, putting out with them to lend a hand at the trawls, returning at night, tanned by wind and sun, to rest in a clean, home-like chamber, there to lie happily watching the stars through a window until one is lulled into refreshing slumber by the hushing sound of the sea behind the hill.

Read what George Matthew Adams has to say about one of these Nova Scotian fishing villages:

I have read of the scenic splendours of the world, and I have sat and listened to people tell of them, who have visited them. A few I have seen. The semi-tropics, the desert, the Rocky Mountains, glorious Florida and California, the gigantic redwoods, the Grand Canyon—but all alone, on a separate page, in my memory-book of beauty spots, I place all that I was able to drink into my being and paint upon the canvas of my heart, of Peggy's Cove. It's scenic unique!

I saw a sunset here. The soft grey, purple shadows crept across the granite of the great rolling rocks, leaping to the fishing craft in the little harbour, playing upon tiny beds of flowers that line the homes of these simple folk, and then melting to the water's edge to die in the moss and weeds about the base of the rocks and the foam of the sea. The rocks there are smooth, washed by centuries of sea waves, by some so mad that they have bitten in to the face of the rock and given to it thousands of dimples.



And there are gorges, and steps, and great platforms, so smooth that you could happily sleep upon them on a blanket. Some day I hope to see a sunrise at Peggy's—and some day to be there in a storm. What a sight that would be!

Romantic History

The second feature of Nova Scotia that impresses a visitor is its romantic history.

Nova Scotia is the beginning of America. No one can enter the Port Royal Habitation at Lower Granville without feeling that he is stepping back into the 16th century. The huge studded oaken door with its "Judas" peep-hole, opening into a courtyard centering a group of buildings in the manner of ancient farms in France, emphasizes a past more romantic than that of any other part of Canada. Here was organized the first fraternal Order on this continent, and its continuance today is a real link with the days of de Monts and Champlain. The Nova Scotia flag flying from many poles adds to the historic charm of the province, while the tale of the Baronets of Nova Scotia

The Evangeline statue and church in the memorial park at Grand Pré.





Champlain Habitation, Lower Granville.

C.P.R. photo



Side view of Fort Anne

has no parallel on this side of the Atlantic.

The earliest effort at permanent settlement in Nova Scotia was made by de Monts and his gallant band at Port Royal in 1605, and for many years the site they chose was the capital of old Acadia. Two decades later King James the First of England and Sixth of Scotland granted Acadia to Sir William Alexander, naming it "The Royal Province", to be known as New Scotland or Nova Scotia. Sir William dreamed of a feudal state, with himself as Lieutenant-General,

and for the purpose of taking possession of his lands after the feudal fashion had a strip of land within Edinburgh Castle grounds named "Nova Scotia, a part of the New World." On that plot of ground Scottish gentlemen stood to be created Baronets of Nova Scotia in accustomed ceremonial. Knighthood was conferred upon each Scottish gentleman who would subscribe 3000 marks towards the exploration and colonization of the Royal Province, and 140 persons claimed the honour. Each creation carried



A scale model of the ancient Fort of Louisbourg

N.S. Bureau of Information

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Anne's house in Annapolis Royal near Kentville.
C.P.R. photo



The museum at Louisbourg
N.S. Bureau of Information

with it a barony of four by six miles in Nova Scotia. Expeditions were raised and sent out from Scotland but in 1629 the province was handed back to France.

The project of Sir William, therefore, did little more than imprint the name of Nova Scotia on the map of America for all time and leave a new Order of Baronets.

Many times in the century that followed the province became in turn an English or French possession. The old fort at Annapolis was captured and re-captured seven times and it was not until 1710 that the Lily flag of France fluttered down from the staff of the fort for the last time. Annapolis was named for Queen Anne, then seated on the British throne, and for forty years was the capital of Nova Scotia. The old English Governor, a king in miniature, maintained his court

and welcomed guests, his almost regal attire adding old-world splendour to the balls and dinners at Government House, which stood within the fort.

Memorial Park at Grand Pré

Visitors are enchanted with the Memorial Park at Grand Pré. The old French willows, Evangeline's well and the chapel of Norman architecture are enclosed in a lovely garden of flowers and hedge. Up the hill from the village still stands an ancient church, once known as the Church of the Covenanters. About it lie old graves and inside you may see the old boxed pews and the high-up pulpit. Great willow, and other trees, almost bury the church from the view of passers by. Away in the distance is the beautiful Blomidon mountain, with its famed Look-Off. Nearer lies the fertile valley where the Acadians tilled the soil. The

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Front view of Fort Anne at Annapolis Royal.

Photo by G. M. Dallyn





A destroyer passes the lighthouse at Shelburne

Memorial Park lies between the gentle hillside where the old French hamlet stood and the lush, flat Great Meadow itself.

Acadian settlers, during the seventeenth and eighteenth centuries, put through a reclamation project that would be an outstanding engineering job even today. They diked the vast mud flats formed by the Fundy tides at the mouths of the rivers that reach into the land from Minas Basin. In 1755 the English expelled the Acadians from the country. Longfellow's metrical story of this exodus tells history in memorable form, but the emphasis on British guilt in this tragedy is more the poet's than history's.

Cape Breton is one of the oldest names in the history of the New World. It was the scene of much semi-piratical warfare as nations decided the fate of North America. Some records say it was discovered by Basque fishermen one hundred years before Columbus landed at San Salvador. From the fifteenth to the eighteenth centuries it was the resort of adventurers from Europe — English, French, Spanish, Portuguese, and Dutch. For two centuries it was an issue in world politics, resulting in the upsetting of international treaties. Two wars centered on Cape Breton Island.

Historic Louisbourg

Louisbourg National Historic Park encloses in its 328 acres one of the most interesting historic links between the old and new worlds. Here valorous men of two great nations fought for the supremacy of this continent. The first expeditionary force of size from New England fought on this island. While the French Revolution was brewing the greatest fortress built in America was rearing its walls upon Cape Breton's shore line. It took twenty-five years in building and the cost was more than six millions. Old Louisbourg was a city walled and bastioned, bristling with cannon and sheltering a motley population of more than twenty thousand. Its buildings included a cathedral, a convent, hospital, theatre and brewery. The fortress was captured after forty-nine days of heroic fighting by both sides, and its fall was largely due to the dogged determination of the New Englanders.

Handed back to France by the terms of the Treaty of Aix-la-Chapelle, Louisbourg was again captured in 1758 by a British expedition, and it was during this action that General Wolfe won recognition as one of the greatest soldiers of the British Empire.



Surf near Hubbards

N.S. Bureau of Information

Today at Louisbourg the great piles of masonry, the streets of old French cellars, the mounds and embankments, the old vaulted casemates where terrified women and children sought refuge from the storm of shot and shell during two sieges, speak eloquently to the visitor of the French king's dream of invincibility. The imagination can easily people the old streets with the white-coated soldiers, the gold-braided officers, the sprinkling of monks and nuns, and the women who served the men. In the naval and military cemeteries lie buried side by side, friend and foe alike, Britisher, Frenchman, and New Englander. Novelists have woven entertaining stories, filled with romance, around these old scenes of strife and carnage, and the whole scene has become increasingly fascinating to the visitor.

A tablet affixed to the lighthouse tower at Louisbourg reads:

Louisbourg. On this site was erected by France, in 1731, the first Lighthouse Tower, constructed of fire-proof materials, in North America. Near here the British erected batteries to silence the defensive works erected by France on the island opposite the entrance. In 1745, these batteries were commanded by Lt.-Col. John Gorham; in 1758, by Brigadier General James Wolfe.

Four miles away, at Kennington Cove, a misty dent in the rocky Atlantic coast, there

The rock bound coast of Nova Scotia

is a cairn bearing another tablet, which reads:

Wolfe's Landing. Here, 8th June, 1758, the men of Brigadier General James Wolfe's brigade, after having been repulsed with heavy losses by the French troops entrenched westward, made their gallant and successful landing. Thus began the operations which ended on 26th July by the capitulation of Louisbourg.





*Above:—View of Bras d'Or Lakes
from Marble Mountain, Cape Breton*

*Left:—Looking south from the top of
Cape Smoky on the Cabot Trail*

Top right:—The lighthouse at Pictou

*Bottom right:—Fishing in Lake
O'Law near northeast Margaree*







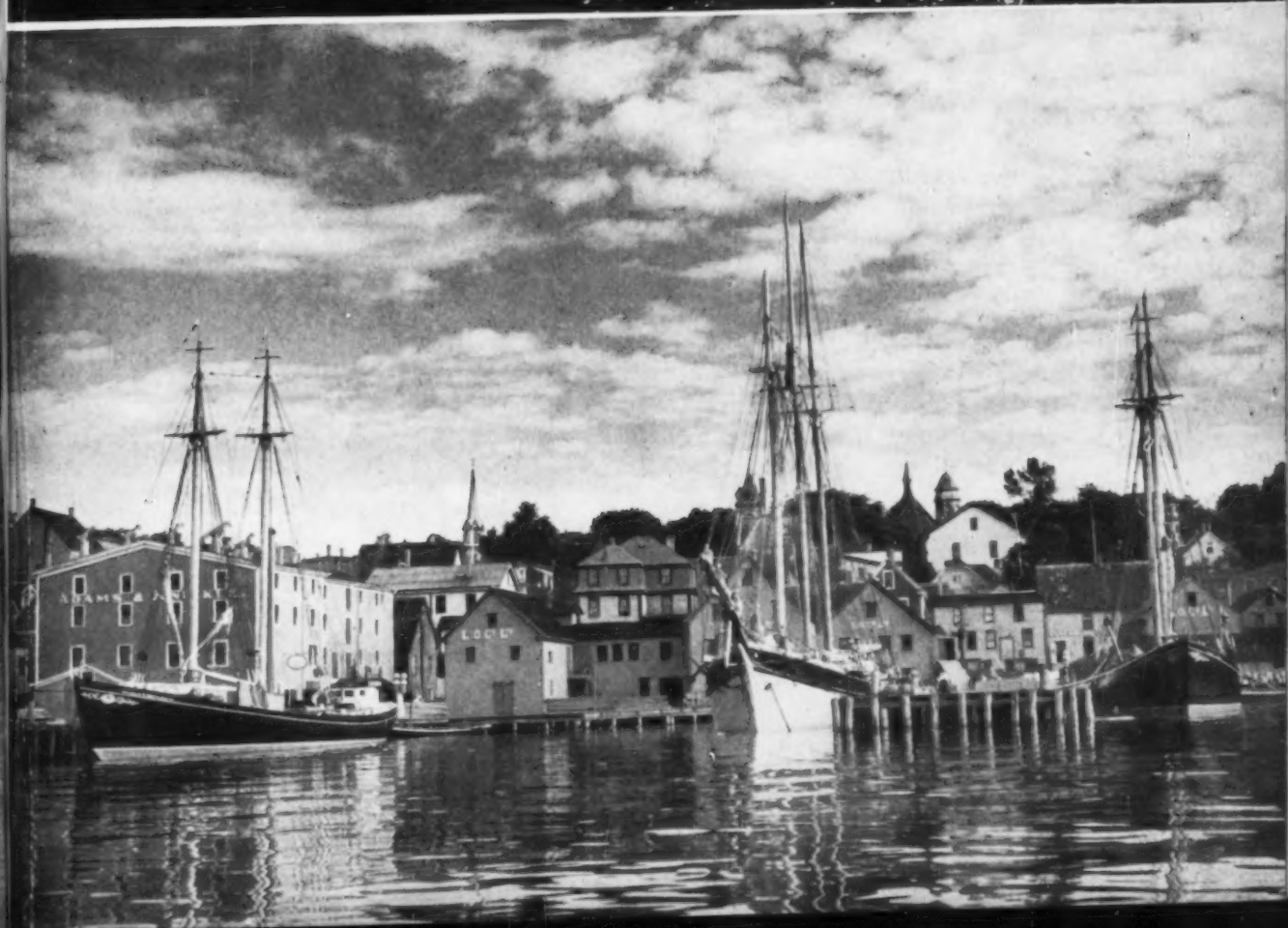
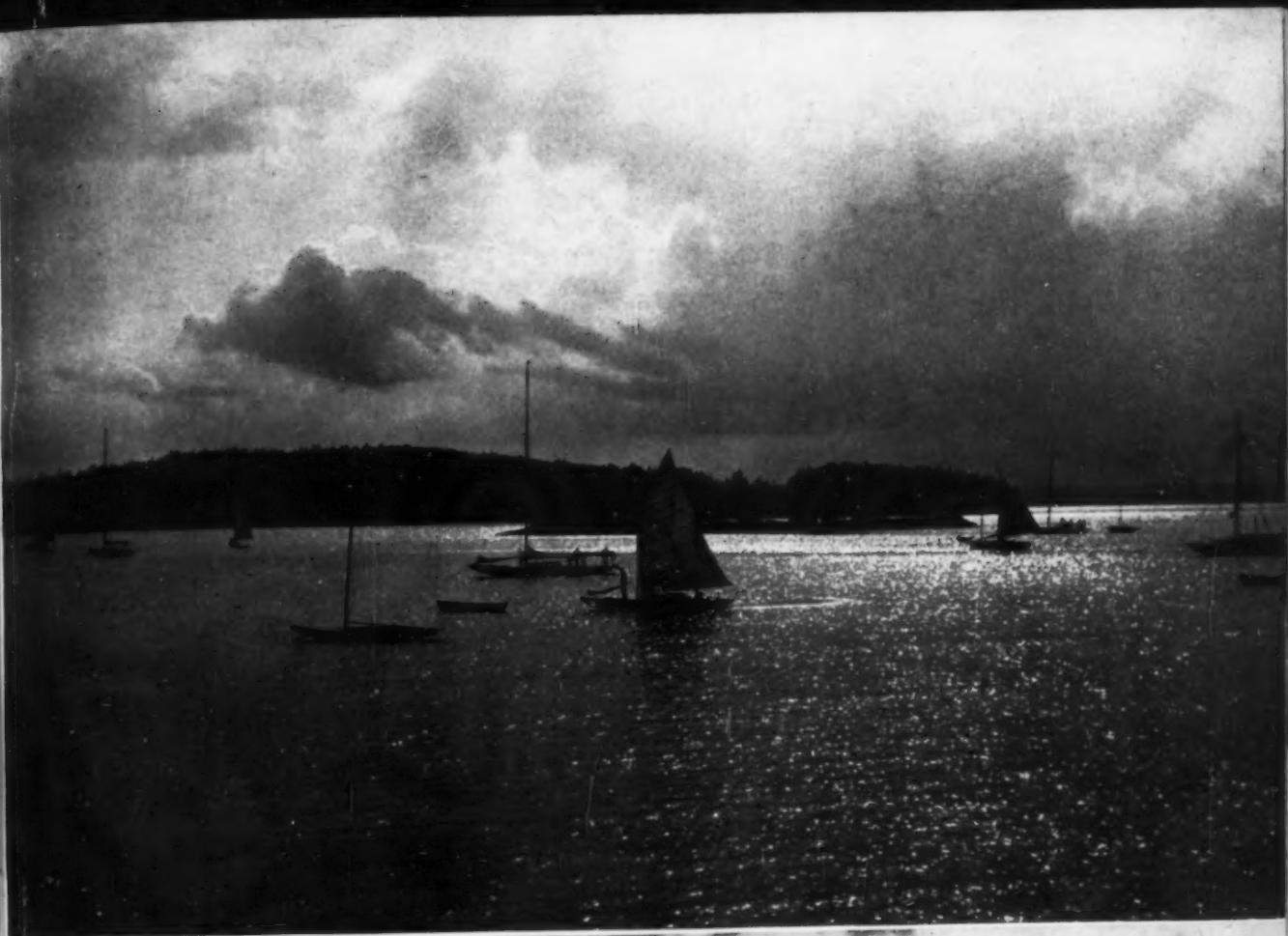
Above:—Yarmouth Light

Top right:—The inner harbour at Chester

Below:—The village of Cheticamp, Cape Breton

Bottom right:—The harbour at Lunenburg







Apple trees in bloom in the Annapolis Valley



Margaree For. Cap

The visitor, noting the wild surf and bouldered beach will wonder how men in wooden boats could survive any landing, let alone one opposed by armed men, and will realize that men of great daring lived in those days of Louisbourg.

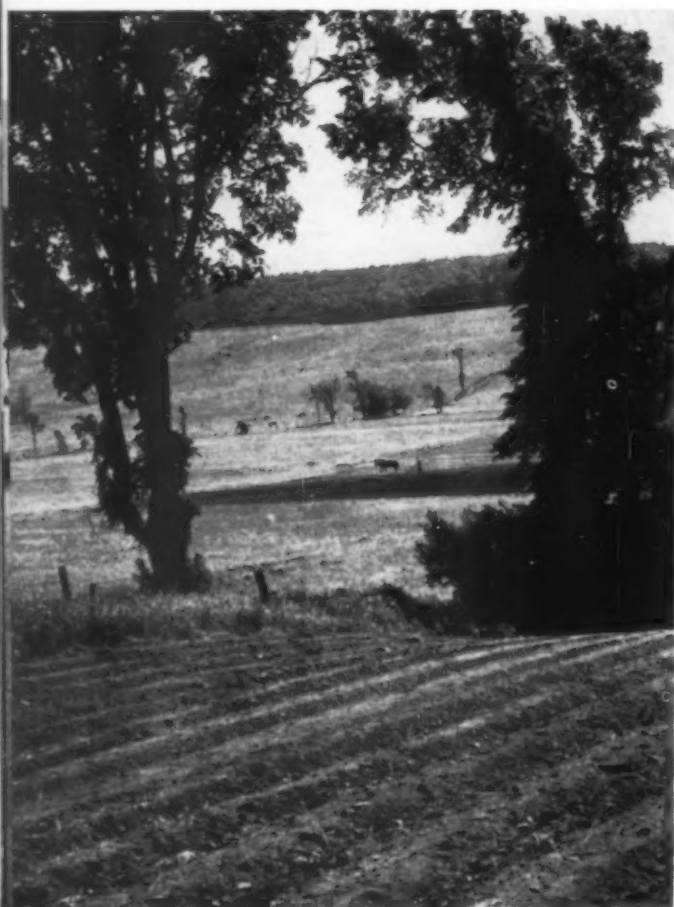
There are few trees at Louisbourg. Sea winds whisper eternally in the long brown

grass, lending, at evening, strength to the tales of soldier ghosts astir along the ancient earthworks. Gulls flap in and out of the mist over the harbour, their mournful cries seeming to accentuate the melancholy of shattered hopes and vanished grandeur. A fine museum contains interesting relics of the fort's heyday and a detailed model of Louisbourg at its height. Rhymed gloating, entitled "A New Song wrote on the Taken of Louisbourg," is preserved under glass in the Museum:

"Prepare, British Boys, your Hearts
for new joys,
For Cape Breton and Louisbourg's
taken;
Our Cannon's dire Thunder,
Has made France knock under,
And Louis—and Louis has scarce
saved his bacon."

Nova Scotia is rich in historic sites, so much so that the Historic Sites and Monuments Board of Canada has already placed fitting memorials at thirty-six such spots, and many more are deserving of recognition. The Nova Scotia Historical Society has placed tablets at thirty-five different sites. These sites include Windsor, Canso, Fort Lawrence, Shelburne, Halifax, La Have, St. Ann, St. Peter's, Bloody Creek, Wallace Bridge, Liverpool, Port la Tour, Pictou, Sambro, Tatamagouche and many others.

Farm near New Glasgow





ree For Cape Breton



Haying scene at Glendale, Cape Breton

Haliburton Memorial—Windsor

At Windsor the visitor is intrigued first by the high tides of the Avon River. In the morning he may admire the wide, deep-flowing stream and gaze upon the schooner coming to anchor by the wharf. After lunch he will stare in wonder. The river has vanished and the schooner lies in the red mud like a helpless water fowl. Signs about the old town will direct him to Haliburton Memorial Museum, where a lane climbs and winds through a spacious wood to a storey-and-a-half house that Thomas Chandler Haliburton erected for himself. It was there he wrote his

books, including "Sam Slick," and the rooms of this fine old home are still furnished as he directed. The beautiful lawns, hedges and flower beds tell of Haliburton's passion for landscaping, and delight the eye today as they did a century ago.

The only surviving blockhouse in the Maritimes still defies the weather at Windsor, a battered old grey building, dreaming above the site of Fort Edward. The fort itself was destroyed by fire some years ago and the site is now part of the local golf course, with the moat one of the hazards, but any probing into the past brings to

Farm near Pictou







Cape Blomidon.

C.P.R. photo

light the importance of the stronghold. It was there that the New England colonel, Winslow, conferred with Captain Murray as to the correct procedure for expelling the Acadians, and numbers of prisoners were held there long after the departure of Gabriel and Evangeline.

Windsor claims two other distinctions in history. King's College, oldest English University in Canada, was opened in Windsor in 1790. On July 24, 1815, a charter was granted by the Lieutenant-Governor permitting Windsor to hold a public fair each year, and this is believed to be the oldest permanent fair in America. A monument in Windsor bears the following inscription:

First Agricultural Fair in Canada. Commemorating the first agricultural fair in Canada, authorized on the creation of the township of Windsor in 1764, and held at Fort Edward Hill, 21st May, 1765. Prizes were awarded for creditable exhibits of cattle, horses, sheep, hogs, grain, butter, cheese and homespun cloth. In 1766 the trustees of the Fair received a Royal Charter which was renewed in 1815. Since that date the Fair has had an uninterrupted existence.

Cape Canso is the most easterly point on the mainland and the site of one of the picturesque towns of Nova Scotia. It was known to European fishermen soon after the coming of Columbus, and attempts at colonization were made as early as 1518. New England regiments, and Wolfe, used it as a base in the operations against Louisbourg. One of the rugged islands still contains plentiful traces of French occupation. Block-houses and small forts were built and captured and burned over and over again at Canso, and the present town was not founded until 1764. Nevertheless its history is an exciting tale of Indian raids, pirate raids and attacks by privateersmen.

Other Historic Spots

Other historic spots that add glamour to the province are Shelburne, built overnight by Loyalists from New York who hoped to make it a rival of the American city. Famous in the days of clipper ships for the craft built

Top left:—Oxen among the apple blossoms at Kentville. C.P.R. photo

Bottom left:—Sunrise Valley on the Cabot Trail

there, its yards are still busy, and on the wide shady streets above the long wooded harbour one may still find the old wells that served those firstcomers of 1783; Fort Lawrence, on the isthmus of Chignecto, Nova Scotia's narrow link to the mainland, is the portal to the province for all overland visitors. The old earthworks of the fort are gouged today by a railway cutting, and only the cairn of stone marks the spot where Major Lawrence built the stronghold that was to rival famous Beauséjour, a mile distant over the Tantramar marshes that simmer like a green sea in the summer, dotted by gray hay barns and ribboned by tidal streams whose dikes are festooned by blooming wild roses. Nearby is the Nova Scotia Government Information Bureau, situated in a fine park that was in 1686 the centre of the thriving Acadian village of Beaubassin. Anyone delving with a spade in the rich loam of the slope soon reveals heaps of hemlock bark or piled Acadian brick. The brick kiln

and the tannery were at the site below an artificial basin constructed lately to contain a large map of Nova Scotia in relief contour.

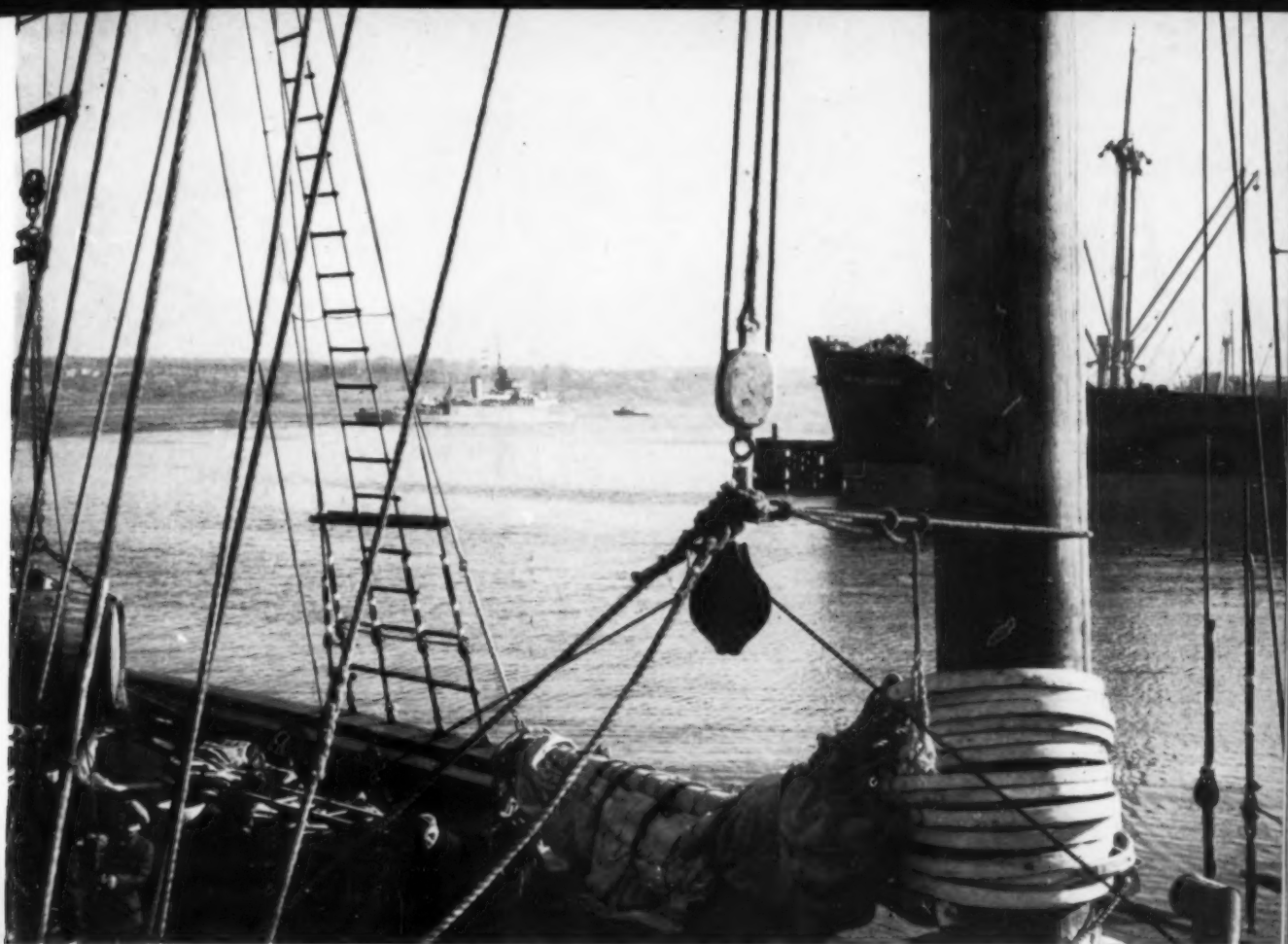
St. Peter's with its ancient canal, and site of the famous Denys fort of 1650; St. Ann, the first permanent settlement of civilized man in Cape Breton; Liverpool, the great privateer centre in the old days when the wind ruled commerce, its water front still packed with local colour; the rich historic region of La Have, settled in 1632 by the first of the Acadians; old Pictou, still musical with Scottish names and songs of the "Hector," and burry with Scottish voices; sleepy Tatamagouche with its legends of pirates and privateers—these are but a few of the places in Nova Scotia still framed with French and English memories of the seventeenth and eighteenth centuries, and beloved by visitors who favour historic lands.

Changing Scenery

The third feature of Nova Scotia that impresses the average visitor is the constant

Ingonish Harbour, Cape Breton





The old and the new

change of scenery. The country, generally speaking, is rolling, but every once in a while one finds oneself at the top of a high elevation overlooking a panorama of beauty that almost takes the breath away.

The South Shore, west from Halifax, is a characteristic section of this unusual province. Here is the winding road, with every turn a new scene of interest. Beautiful coves and bays are lined with quaint fishing sheds and native cottages.

Chester is hidden away at the upper eastern lap of Mahone Bay. Here are placid waters with islands so thick they form a chain far as the eye can see. Behind one of them is Oak Island where digging for pirate gold has gone on since 1795. There is an island for every day in the year in this great Bay. Sailing craft are seen everywhere. From the top of a high hill there is a magnificent view of blue water, scattered homes, and

islands. Lunenburg, a beautiful old Hanoverian community, crowned graciously with worthy years, proud home of the famous "Bluenose", champion schooner, stands on a beetling hill between front and back harbours, the green twilight of ancient trees failing to quench the flame of its fine gardens. Down the hill the chimes of St. John's Church, second oldest Protestant Church in Canada, sprinkle benediction. The front harbour is the home of more fishing schooners than any other port in the Dominion. Lunenburg's water front, with its wharves, fish warehouses, and ship outfitters, is fascinating to the land lubber as are the clear-eyed, high-coloured old salts who walk with sea legs.

The South Shore line is irregular, with graceful fingers dipping their tips far out, forming coves for tired waters in between. Wooded islands break the view here and there.



Petite Riviere is the heart of the scenery of the La Have district and close by is the remarkable Crescent Beach.

Then there are White Point Beach, with a marvellous panorama of wide blue sea; Port Mouton, with a golf course laid out over the sand dunes; Lockeport, with deep and lovely sea-scapes; the Pubnicos, nine French-speaking villages clustered along both green sides of Pubnico Harbour, and Yarmouth, the southern gateway of the Province. Here are fields red with lobster shells, and tall striped lighthouses fronting little farms that press back against vast tracts of forest primeval. These are but a few of the scenic gems along the South Shore. Scenically the Annapolis Valley is something of a kaleidoscope. Changes are quick, contrasts sharp. Against the "Old Acadia" atmosphere of St. Mary's Bay Shore comes the "British Colonialness" of Annapolis Basin. Against the endless apple orchards of the central Valley the flat diked-lands of Grand Pré. Against the quiet inland towns the stark little fishing villages on the Fundy shore. St. Mary's Bay Shore draws you into a quaint, delightful French world. Dozens of French hamlets lie end-to-end along the Bay

to form the "longest main street in America". Here are great churches, wayside shrines, plodding oxen with ornamental yokes, thin French farms, French patois, and French signs. Over all is the salty tang of the sea.

Off the main highway lies Bear River, the little Switzerland of Nova Scotia, with the backwoods creeping up on the town's edge



At top:—Looking towards the mouth of Halifax harbour from the Citadel.

Right:—Pope's harbour east of Halifax



and deer bold enough to nibble at the orchards. At Bridgetown begins the real apple country. Gone are the great expanses of red water. The Annapolis has become small and pale like other rivers. Between the sheltering North and South Mountains the orchards march on and on. Here and there are barrens where the sandy soil of a forgotten sea is

adapted to the culture of cranberries. Take any side trail over the swift uplift of North Mountain and different scenic delights are to be found on the shores of the Bay of Fundy. Here is a grandness of coastline and a misty spaciousness of water, salty coolness and the beat of surf.

Next there is the Cornwallis Valley, soul of the Acadia of two centuries ago. Stern Blomidon is the landmark above the verdant dikes and the red rivers cutting their restrained way toward the Basin of Minas. Orchards and more orchards. Bustling Kentville, a purely English town. Nearby Aldershot has been a busy military encampment in two world wars. Best-known drive is that to the Look-Off on Blomidon. The view is breathless, with the valley a checkerboard of fields and orchards. Five counties are visible, and six rivers.

Blomidon is rich in legend. The Micmac Indians say it was a giant beaver dam which their god, Glooscap, broke down by bending Cape Split back into the Bay of Fundy. The odd volcanic island at its foot is the teapot he turned over as he departed in anger, never to return. The amethysts found here are Glooscap's jewels. The promontory of sandstone



At top:—Halifax harbour from the Citadel, showing Dartmouth in the distance.

is a joy to the geologist, for many strange minerals are to be found.

The hurried visitor misses much on the valley drive. There is Digby, one of Nova Scotia's play spots, fronting stark Digby Gut, gateway to the Bay of Fundy; Clementsport, with its old Loyalist Church of St. Edward; Wolfville, the college town, a town with a genteel, scholarly loveliness, with lush shade trees and homes of simple elegance; finally, Halifax!

All roads will lead to Halifax in 1949, when the old city will celebrate its 200th birthday. The Indians named its fine harbour "Chebucto", meaning "Great Haven", but when Champlain explored it to the end of Bedford Basin in 1604 he named it Baie Saine, "Safe Harbour".

The City of Halifax

In 1748 it became evident to British authorities that a heavily-garrisoned Atlantic port, to offset French designs, must be established in Nova Scotia. So the only fiat town in America was planned. In May, the next year, the Council of Trade and Plantations sent Colonel Edward Cornwallis, as Governor, to settle the new town, which was named for George Montague, Earl of Halifax, then President of the Council. Thirteen transports brought 2,571 settlers who actually carved their homes from the virgin wilderness.

In one of the rooms of Province House, Halifax, is an old polished table of oak. The inscription on a bronze plate set in the top testifies that the new Governor and his Council for the Province of Nova Scotia, held their first meeting about that table July 14, 1749, on board His Majesty's ship *Beaufort*. The system of government then enjoyed by Virginia was adopted for Nova Scotia.

As soon as they landed the Cornwallis settlers began to clear land, erect homes and build wharves. They constructed St. Paul's Church, the oldest Anglican church in Canada, modelled after Marylebone Chapel, London, England, its frame and other materials being brought from Boston.

From 1749 to the present the history of Halifax has been closely knit with the finest

traditions of Britain's army and navy. In 1758 Wolfe stepped ashore from the *Princess Amelia*, and for two weeks Halifax streets echoed the footsteps of thousands of New England men who had volunteered for the second siege of Louisbourg. The young officer entertained forty-seven friends at the "Great Pontac," a celebrated inn, and the dinner cost £98; 120 bottles of wine and 25 bottles of brandy were consumed.

Merry tales are told of the days when Prince William Henry, afterward William IV of England, wended his way in unconventional manner about the various taverns; of the Duke of Kent and his romance. The social brilliancy of those days is still legend in Halifax. It is worthy of note, too, that some four or five lads of Halifax rose to be admirals in the navy.

Citadel Hill rises in the centre of Halifax, 271 feet above the harbour, and the rest of the city is draped over lesser hills, looking up to the squat, gray-walled citadel that was never attacked. He who stands upon its eminence beholds a glorious scene. The city occupies a peninsula, its shore line to the east forming the main harbour which, lying north and south six miles long and five broad, is one of the finest in the world. At the head of the harbour, Bedford Basin is entered through the Narrows. On the west lies the Northwest Arm, a beautiful sheet of water, the rendezvous for all lovers of aquatic sports. To the south the eye looks upon the open Atlantic reaching gray-green into the haze of distance.

Ships of all nations lie at the docks of Halifax. Robert Norwood, the poet, wrote of these:

Water Street has always held for me a rare charm. I would walk up and down it, turning in at every quaint wharf, just to hear the men talking and to watch them at their tasks. I loved colour, and the effect of the sun on the wharves with their bales of merchandise lives in those lines written in "Paul to Timothy," where he looks back and talks of the "Tall Bacchic Amphora," and the perfumed bales of Tyrian purple along the quay; the men with arms like anchor cables in their strength.

While English to the core, the life of Halifax is distinctly cosmopolitan. It has been said that for a relatively small city, there was no place in which life was larger,

because of its position as an international seaport, with local life responsive to influences reflected from the great marts of the world. Basil King called such ports "the free ports of Mankind." He wrote: "It is in contact with the great big world to a degree not surpassed by New York, Liverpool or Yokohama. It has a settled life, it is true, but its chief life is that magnificent touch-and-go, with a splendid variety of contacts. Go out to dine, your neighbour on one side might be from Gibraltar, and on the other from North Dakota. It is a kind of mental or social trading post, giving a breadth of experience far beyond what it might have been supposed to yield merely from its position on the map."

Places of interest about Halifax include the 200-acre Point Pleasant Park, with its occasional open slopes covered with purple Scottish heather. Hidden among the shrubbery is the Martello Tower, a coastal defence dating back to the time of the Duke of Kent. A National Memorial Tower, situated in Fleming Park on the west side of the Arm, commemorates the first Elective Assembly in the Dominion, which met at Halifax, October 2, 1758. The Public Gardens are beautifully

kept and are unexcelled, except for size, on the continent.

Many lines of steamers connect Halifax with ports of the North American coast, Europe, the West Indies, Central and South America. Wheat, hay, apples, fish, coal, lumber and beef sink to their Plimsoll marks freighters loading here. Sir Samuel Cunard, founder of the British steamship company that bears his name, was born in Halifax. On the day in 1840 when his *Britannia* completed her first Atlantic crossing from Liverpool to Boston in the phenomenal time of 14 days and 8 hours, Cunard is said to have received two thousand invitations to dinner.

The old city had the first public school, the first newspaper, the first printing press, the first Protestant church, the first public gardens, the first dockyard and the first post office in the Dominion. Haligonians know that the first hockey in America was played in Halifax on the first skating rink in Canada. Halifax also had the first tennis court.

Northward, Halifax has been rebuilt since the 1917 explosion when, in a single moment, nearly 2000 persons were hurled into eternity, 6000 maimed or blinded, and

The church set in boulder-strewn land at Peggy's Cove.



Photos by G. M. Dallyn



The mudflats outside Halifax.

Photo by G. M. Dallyn

\$35,000,000 worth of property destroyed.* Windows were broken in Truro fifty miles away. A one-ton shank of anchor was blown three miles. A six-inch gun landed miles away, in one of the Dartmouth lakes.

On the Halifax water front sprawls the plant of the National Fisheries Company. When one of the big steam trawlers is in, the place is an ant hill of activity. Standing teams of men work at long tables under a battery of brilliant lights. They slit cod and halibut, split the fat fillets from the backbones, and toss the clean fish steaks into boxes, whence they are snatched away to be smoked or frozen. Fifty million pounds of fish pass through this one plant every year, and from mid-September until Lent the rush is never-ceasing to supply fish for dinner tables as far away as Baltimore and Winnipeg.

Notable old Province House is an august island of the past in a sea of modern office buildings, a Georgian masterpiece, with mantelpiece mouldings showing corals, shells and seaweeds—motifs brought from the West Indies in the old days, along with sugar and rum.

Hub of the Province

Nova Scotia's Highway 4 leads from Truro, the hub of the province, situated

amid the lush farmlands at the head of Cobequid Bay, to Scottish Pictou and Antigonish counties bordering the gentle waters of Northumberland Strait and such characteristics as green hills, lobster fleets, little lighthouses and long sandy beaches. From New Glasgow to Antigonish, home of the co-operative movement in the Maritimes, the highway winds over gentle slopes and around small valleys. It continues past the bays and meadows of the Acadian Tracadies, past pleasant land-locked Havre Bouche and Auld's Cove, over the end of Cape Porcupine's to Mulgrave, and the ferry crossing the Strait of Canso.

The visitor may reach the same destination by travelling from Halifax via Dartmouth, across the Harbour, Musquodoboit Harbour, the hub of many beauty spots, Clam Harbour, Sheet Harbour and Sherbrooke to Antigonish. Such a journey takes one back to Nature. Unpierced by railways, here you have a 200-mile-long district of the hinterland of long ago. The original forest, peopled by moose and deer and black bear and beaver, weds the sea and is only divorced occasionally by a fishing hamlet. Great sand beaches provide speedways for a car. Rocky little harbours remain as they were when infested by pirates. There is a sense of

*The explosion was caused when two ships, one heavily laden with war materiel, collided in the Narrows.

privacy along this Eastern Shore drive, enhanced by the long narrow inlets guarded by sentinels of massive boulders and the lighthouses sprouting from granite cliffs or spruce-clad promontories.

The Royal Island

Cape Breton—The Royal Island! The land of square dances and Gaelic songs, of milling frolics, spinning contests, misty glens; the realm of giants, shipwrecks and eerie fireside tales. Highway 5 leads northward from Port Hawkesbury, then eastward to Baddeck, winding through picturesque Whycocomagh sleeping between the Salt and Skye mountains, to Baddeck. Along the way the road clings to the banks of the Bras d'Or Lakes, whose name means "arm of gold". Broad waters, christened thus aptly by French pioneers, so deeply invade the emerald land that Cape Breton has been termed "a lake surrounded by mountains". Tapping the ocean only through two narrow northern channels, the big salt lakes, like the Mediterranean, are almost tideless.

One route from Hawkesbury winds from Cleveland and West Bay past Marble Mountain and Orangedale to Whycocomagh, bordering magnificent waterscapes and lovely wooded stretches where deer and ruffed grouse are glimpsed occasionally. Across the lake rise mountain sides of intense, harmonious colour, near at hand green arms of land stretch lazily into a surface of turquoise blue. Curves follow curves. Tops of spruce trees descent in terraced beauty, down and down to a beach of white sand.

The straggling little town of Baddeck preserves ancestral Scottish customs. Yet the villagers of today still hold personal memories of Alexander Graham Bell, inventor of the telephone. Only a deep bay separates Baddeck from the high, jutting peninsula of Beinn Bhreagh (Gaelic for beautiful mountain), Dr. Bell's home for a part of every year from 1886 to 1922.

The elm-dotted Margaree Valley cradles the last part of the highway from Baddeck to the west coast of the island. Twigged with tributary brooks, the river's two branches merge at Margaree Forks. Flood-deposited

sands there are trampled summer long by enthusiastic salmon anglers from far and near who argue ardently over the merits of the famous Forks, Thornbush, Hut and Long pools. For rural charm of wooded hills and lush hay flats and grain fields, the Margaree Valley has few peers. Artist groups are seen in many corners, trying to catch the magic of the scenery.

Cabot Trail

From Margaree Harbour north to Cheticamp the Cabot Trail skirts the brink of the sea cliffs and wanders through Acadian villages. Inhabitants here are of French descent; language, devoutness, and vivacity have been handed down from Norman ancestors. Rug-hooking, a native handicraft in Cheticamp, and many other Cape Breton communities, has been expanded during the past decade until scatter rugs and larger pieces can be found in American homes from New England to the deep south.

Above Cheticamp the Cabot Trail parallels the cliff-walled shore, then skims upward over wooded steepes to a high plateau. At the far end of this range of spruce-clad hills the



Coming in to the dock at Digby.
Photo by G. M. Dallyn

road winds down and down and down to Pleasant Valley. It then veers inland over North Mountain, overlooking a billowing sea of evergreens until descending into Sunrise Valley, it affords some of the finest views of all Nova Scotian valleys. Then comes Neil Harbour, huddled starkly on bare rocks. Jagged granite parapets receive the agelong onslaught of the sea and there is ever the drumming of surf and the salty tang of flying spray. South now, the trail winds to the mountain-guarded double bay at Ingonish. The beach here is wide and sandy, with only a bar separating the surf from a fresh water pool.

On this eastern shore the Highlands Park area has scenery reminiscent of the Highlands of Scotland. Between numerous coves the rocky parapets rise in grandeur, and visitors proclaim Ingonish one of the superb beauty spots of America. The main entrance to Cape Breton Highlands National Park is at South Ingonish where the administrative headquarters are located. Here in the shadow of Cape Smoky is one of the finest anchorages on the eastern coast and it is frequented by many types of deep-sea craft. The picturesque terrain in the vicinity of Middle Head has been used in the construction of one of the finest golf courses in Canada. Keltic

Lodge, operated by the Provincial Government and opened in 1940, offers high-class accommodation. Fishing, boating, bathing, hiking, golf, tennis and motoring can be enjoyed to the full.

Many visitors consider the next few miles of the Cabot Trail leading from Ingonish over Smoky the most impressive, from a scenic standpoint, of any in eastern America. Here is massiveness and grandeur. Here a bold headland towers abruptly a thousand feet over the sea, and half way up is split by a fleecy cloud bank, which sets a smoky haze dancing over its green skirts dropping down sheer to the water's edge, thus giving its name to the headland. From the top of this height there unrolls a scene over which artists enthuse. Rugged cliffs, the ever-wheeling gulls, curving sand beach, an enfolding series of hills and the play of sunlight over jagged spruce and cliff and the great wide sea. The cloud effects in this wild of Cape Breton are a perfect complement to the beauties of land and ocean.

From Ingonish to the Trail's end at Baddeck the residents are mostly of Highland descent. Here can be heard the old Celtic tongue that hurled defiance at Caesar from the shores of Britain two thousand years ago—a tongue that has sounded the

Highland dancing at Antigonish





Keltic Lodge, Cape Breton

war cries of the clans on many a battlefield of the British Empire. There is a choice of two routes leading in to Baddeck. One is by way of Englishtown and its little ferry. Here St. Ann's Bay and its inner land-locked harbour present a perfectly lovely natural canvas. At Englishtown, in the small cemetery, lie the remains of the Cape Breton giant—Angus MacAskill, who toured the world with Tom Thumb. He was seven feet nine inches tall and weighed 425 pounds. Yet he was more noted for his strength than for his size, and there are countless tales of his feats of muscle. The other route, which avoids the ferry, takes the visitor by the only Gaelic College in America.

The Gaelic Mod, an annual event in Cape Breton, is held at St. Ann. Visitors are hugely entertained by old Gaelic songs handed down from Hebridean ancestors. They are thrilled by fiddlers who play jigs, reels, and pipe marches, the old-time square dances and sets of Scotch-eights. They like to purchase

hand-knitted socks and sweaters, blankets woven on hand looms, hooked rugs—products of the long winter evenings and busy fingers. Best of all, visitors like the milling frolics. Veteran singers sit at a bare wooden table. A long piece of gray homespun that has been soaked for hours in soapy water is loosely rolled lengthwise and laid around the table's edge. Breaking into Gaelic song, the "millers" clutch the homespun and, in time with the ballad, squeeze and twist the fabric before placing it down and to the right with a sharp thump. Up-swing-thump. Up-swing-thump. On and on, twenty times a minute, fists beat the table to cadences of the "Tocherless Lass" or "The Road to the Isles," while a wet-wool smell suffuses the room.

Sydney is Canada's "Pittsburg", a great steel centre, with the glow of its furnaces reflected in the harbour waters in the evening. At Glace Bay great coal mines run under the sea three miles and more. From Table

Head, just north of this town, Marconi sent the first wireless message across the Atlantic in 1902. Then there is Isle Madame. Let a visitor give his impressions:

After passing lovely lakes, and crossing bridges, we came suddenly upon the town of Arichat. I shall never forget its first thrill. Quaint, picturesque, peaceful and beautiful. We drove through the town, down and up steep hills, watched cattle and sheep grazing upon the side hills and resting in the sunlight upon high, rocky and foliated banks.

Below were scattered fishing nets and fish traps drying in the open. Boats rocked at the water's edge. Sails glistened from reflected light. The beautiful church spire seemed to dominate the landscape, as in all the towns we passed through. To me this spot was one of the most entrancingly interesting places that I have ever seen. This "Little Kingdom by the Sea" was settled by Acadians, by French Huguenots from the Channel Isles, and by refugees from old Louisbourg. The language of the Bourbons of monarchical France is still the language there.

This has been a hasty glance at Cape Breton Island. It is a place for people who have time, who are tired of the city rush, who really love the open beauty of countryside, lakes, forest, hills and seashore. Writers have exhausted their vocabulary of words in its praise; artists have tried to trick their paints into immortalizing it. None have succeeded.

You can drive the length of the Island in one day. But you cannot see it all, one might say—ever! It is as though the scenery of the world had been miniaturized and fashioned for this rugged little island as a combined sample of the outdoor beauty of all the world.

Hospitable People

The fourth feature that impresses the visitor to Nova Scotia is the hospitality of the people of this sea-conditioned province. Pedigree doesn't matter in Nova Scotia. The people are weathered human souls. They boast no skyscrapers. Theirs is a contentment and happiness near to the earth. The natural beauty of the sea, their rock-bound coast, their lakes, rivers, forests, and peaceful farming communities, mean more to them than "coronets" or heralded boasts of bigness.

Practically eighty per cent of the population is of British descent. The founding of Halifax in 1749, as a base for the British fleet and military headquarters for North America, established the English population which was to be so notably reinforced by the Loyalists who came after the American war

of Independence. Among these Loyalist refugees were 200 graduates of Harvard and more than that number of graduates of other colleges, with the Chief Justice and three out of four lesser judges of the Superior Court of Massachusetts; one record has it "The whole aristocracy of Boston". The fifty thousand Scots who emigrated from the Highlands of Scotland, settled chiefly in Pictou and Antigonish counties, and the Island of Cape Breton. The third considerable group were King George's subjects from Hanover who arrived soon after the founding of Halifax and settled Lunenburg County. On the south and west coasts and in Cape Breton are Acadian settlements of great charm. Nine shiploads of Yorkshiremen gave their flavour to Cumberland and Kings Counties. Alexander McNutt brought out shiploads of settlers from the north of Ireland, transplanted other Irish from New Hampshire to Colchester County.

These different races have preserved many of their characteristics down the centuries, and you will not understand Nova Scotia fully until you have heard her songs sung in Gaelic and have watched Scottish dances in Cape Breton or at the annual Highland Games at Antigonish; until you have been aboard a Lunenburg fishing schooner and talked with the crew; until you have spent an evening beside a campfire with Nova Scotia guides; until you have watched an Acadian procession on a Sunday morning or attended the Apple Blossom Carnival in the apple land.

Canada's sunrise province has long depended on the sea. The first settlers lived beside the sea for the coastal waters gave them their only highway. Their first living was from the sea, and fishing is still one of the main industries. Pictou has the largest lobster export trade in the world. Digby has the world's largest scallop fleet. The sea brought commerce to Nova Scotia. Canada depends on the ice-free harbours of the province for shipping during the winter months.

Trees, mostly evergreens, still cover about three-fourths of Nova Scotia. Abun-

dance of timber decisively influenced the peninsula's nineteenth century history. For two generations no other activity even approached the importance of ship building. Almost every creek and cove of the province, from 1840 to 1885, rang with the clamour of axes, hammers, adzes, and caulking mallets, the rattle and strain of blocks and tackle. Legions of shipwrights built toughness, speed and grace into gallant windjammers that dominated the deep water trade lanes.

Ships, ships and more ships! The demand for Bluenose vessels gave Nova Scotia, at the crest of its shipbuilding wave, 3,025 registered craft with a total tonnage of more than half a million. This meant one-and-a-quarter tons of shipping per capita of the population, a holding then surpassing that of any country in the world. Donald McKay, who later went to Boston to design the *Flying Cloud* and other clipper ships, learned his trade as a boy in his native Nova Scotia. Shelburne, Yarmouth, Lunenburg, Liverpool, Mahone Bay, Maitland, Pictou, all these, and many others were proud centres of ship building during that glamorous era.

It has been said that a gradual sinking of the land through the ages etched out Nova Scotia's southern edge with a fringe of bays, inlets, harbours and coves—freckled with islands great and small—until the Atlantic exposure of the province looks like a jigsaw puzzle. It is around these coves and islands with their currents and calm waters that blue fin tuna and swordfish come in numbers. Off the Acadian village of Wedgeport, in Yarmouth county, is the tide stream known as Soldier's Rip, which swirls about the rocky Tusket Islands. Thousands of tuna, running from a hundred to a thousand pounds in weight feed here on mackerel and herring that are found from St. Ann's Bay in Cape Breton to St. Mary's Bay Shore up Fundy Bay. All records for taking tuna by rod and line, except two, made in thirty-seven years of angling, have been made in Nova Scotia's coastal waters.

Numberless smacks, schooners and trawlers of the fishing fleets shuttle in and out of Nova Scotia harbours to the nearest ocean

shallows, called "banks", where cod, haddock, halibut, hake, and pollock feed and multiply.

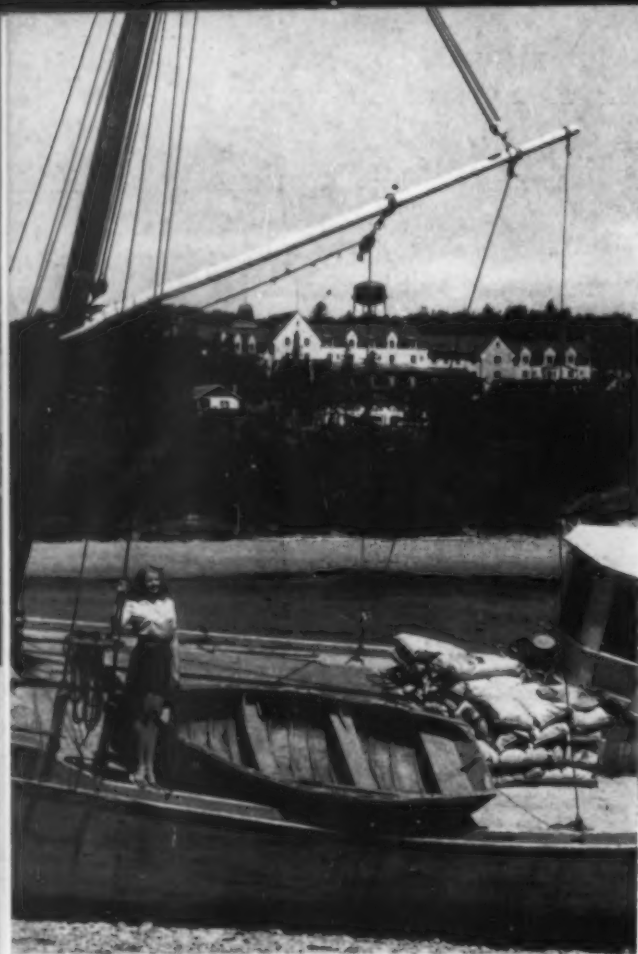
While the years have wrought some outward changes in Nova Scotia, there is now a deeper beauty than when unbroken forests covered the land, when rivers flowing through wilderness spaces knew only the occasional Micmac canoe upon their waters. Many of the streams now flow through fertile valleys that have become a hundred times more beautiful as farm or orchard land. The diked marshes and the meadows stretching into the upland make pleasing scenery. The homes of fisher folk have enhanced the shore line, and winding country roads possess more scenic attractions than any which graced the Indian trails in the long ago.

It is the people, in any final analysis, that make a country interesting, and Nova Scotians have not failed in this respect. Their lives are influenced by the sea. Their romantic history impresses the visitor. They are proud of their province and its variety of scenery. They are a kindly, hospitable people.

The sea, romantic history, changing scenery, hospitable people. Here is a recipe for a happy holiday, and lasting memories.



The swimming pool of the Pines Hotel, Digby.
C.P.R. photo



Top left:—The Pines Hotel dock, Digby.

C.P.R. photo

Bottom left:—Yachting near Lakeside Inn, Yarmouth.

C.P.R. photo

At top:—A view from Keltic Lodge with Cape Smoky in the distance.

Centre:—Yachting on the Northwest Arm, showing the mouth of the harbour.





*At top:—Highway No. 9 near Ward's Brook.
Spencers Island in the distance.*

*Top right:—A Salmon River lighthouse.
C.P.R. photo*

Bottom right:—Park's Falls near Thorburn.

*Bottom centre, left:—Pulling in a large tuna
caught at Wedgeport near Yarmouth.*

*Bottom centre, right:—The beach at Lockeport.
C.P.R. photo*





*The landing
place, Cocos-
Keeling Islands*

The Cocos Islands

Indian Ocean Island with a Social Security Scheme

by SYDNEY MOORHOUSE, F.R.G.S.

INCLUDED IN THE NEW Malayan Colony under the Governor-Generalship of the Rt. Hon. Malcolm MacDonald, until lately British High Commissioner in Canada, is one of the least known outposts of the British Commonwealth of Nations—the Cocos-Keeling Islands.

Situated midway between Ceylon and Australia and 600 miles southwest of Sumatra, the little group of coral atolls suddenly sprang from obscurity to front page news when, in 1945, it was announced that the R.A.F. had established an air base there. Plans for the launching of a large-scale bombing attack on Japanese positions at Singapore and in the Dutch East Indies had already been formulated when peace came to the Far East.

Nevertheless, the position of the Cocos Islands enabled some seventy thousand pounds of medical aids and Red Cross parcels to be flown to prisoner-of-war camps in

Sumatra, Java and Malaya within a few weeks of the capitulation.

Today, the Cocos Islands air base is still being used, but for more peaceful purposes. It is the staging post on the air route between Ceylon and Australia and here the Skymasters and Liberators which make the long crossing are able to stop and refuel before setting out for the final 1,500-mile "leg" across the Indian Ocean.

Dusk was falling as I left Perth, in West Australia, to fly to Ceylon in a Skymaster of R.A.F. Transport Command and all night long we were crossing the sea at a height of 7,000 feet. Dawn came early and through an opening in the clouds, almost under the nose of the huge plane, I saw a complete circle of breakers which quickly turned into an incomplete ring of green islands surrounding a lagoon of varying shades of blue. This was the Cocos and soon we were skimming the tops of the tall coconut palms as we came in

to land on the 2,000 yards-long steel mesh runway which is surely one of the airstrip wonders of the world.

It was the third time I had been to the Cocos Islands. On the first occasion the journey took five days by ship from Ceylon. On that ship were the men who were going to build the airstrip and transform a hitherto unknown island into an operational base.

Airfield construction in South East Asia presented many problems during the war, but few pioneers faced a more difficult proposition than did those engineers and others who succeeded in turning a tropical island into an air base within the space of weeks. Every tool, every appliance, had to be transported across 1,500 miles of sea. There was no reserve of civilian labour on which to draw.

The story of the link-up of the Cocos Islands (which really consist of a large coral atoll composed of an almost circular cluster of low, green islands surrounding a placid lagoon and ringed by the white surf of the Indian Ocean breakers) with the British Commonwealth is the story of the Clunies-Ross family's connection with them for the past hundred and twenty years.

Here was no annexation of a piece of territory and the sending out of settlers to populate it. Rather is it the story of the achievements of a single man who built up a prosperous and happy little community on a deserted island and, all the early efforts of hard and difficult pioneering over, prevailed upon the British Government to accept it as part of a rapidly growing Empire.

The Cocos, or Keeling (as they are sometimes called) Islands were first discovered by Captain William Keeling, of the East India Company in 1609, but no attempt was made to colonize them until over two hundred years afterwards when John Clunies-Ross started his commendable enterprise.

The Clunies-Ross family are of Scottish descent, but after their part in the ill-fated rebellion of 1715 the parents of John Clunies-Ross deemed it safer to leave the country and settled in the Shetland Islands. There the man whose name will always be associ-

ated with the Cocos Islands joined an Arctic whale fishing company and after being skipper of a whaler operating in northern seas, he was transferred to the South Seas in order to examine the possibilities of whale-fishing in the Southern Hemisphere. In May, 1813, along with his wife, he sailed for Batavia, capital of the island of Java, in the brig *Olivia*.

Travelling about the Dutch East Indies, Clunies-Ross came in contact with Alexander Hare, formerly a wealthy London merchant and then British Commissioner in Borneo, and before long he had broken his connection with whaling and entered a partnership with Hare in a coffee and spice trading venture.

The new concern was not a success and so, hearing of a remote coral atoll in the Indian Ocean, the two partners decided to go there and see what could be done in the way of development. They put out from the Dutch East Indies, Clunies-Ross in the *Borneo* and Hare in the *Hippodrome*, and arrived at the Cocos Islands in February, 1827, landing off an island they called Home Island, where they settled.

Almost immediately there came a conflict of interests. Clunies-Ross was anxious to develop some industry on the islands, but Hare toyed with the idea of becoming a kind of eastern potentate, living in luxury surrounded by a host of slaves and maintaining his harem of women. In the end, the two former partners divided the island into two portions, each setting up his own control.

Clunies-Ross had in mind the establishment of a copra industry and succeeded in getting the plant to crush the coconuts from which the kernal is extracted to produce coconut oil and other commodities. He also imported labour from the Malay States and the Dutch East Indies to plant the trees and work in the estates. So was born not only an industry, but also the progenitor of what was to develop into the most contented little community in the East.

Realizing the difficulty of maintaining such an island community on his own, Clunies-Ross approached the British Gov-

ernment and asked them to take over the Cocos Islands, but those in power were not interested. He then approached the Government of Mauritius, the little island some six hundred miles east of Madagascar which had been ceded to the British by the French in the Treaty of Paris (after the Napoleonic Wars), but once more his efforts were unsuccessful. Despairing of placing the Cocos Islands under British rule, he made overtures to the Dutch Government who owned Sumatra and Java, the nearest large islands. The Dutch, also, showed no interest in the Cocos.

In the meantime, Alexander Hare was finding things far from pleasant in his portion of the islands. For a time he endeavoured to bribe Clunies-Ross's workers away, but in 1836 his own slaves left him and he was forced to leave for Singapore, where he died in poverty ten years afterwards.

John Clunies-Ross was now undisputed ruler of the islands and lost no time in establishing himself as "King, Chief Magistrate and Commander-in-Chief of the Cocos Islands". His efforts to build up an industry were successful and his wise and long-sighted administration set up a social system which has continued for well over a century.

Life, however, was far from easy. In 1836—the year that Hare departed—another ship brought John Raymond, who had already served ten years penal servitude for murder, to the island and almost immediately the newcomer commenced to make trouble. Agitating among the native workers, he caused a widespread strike and led them to fire the factory and the sheds.

Clunies-Ross persevered with his scheme and once more rallied the workers around him. Raymond's end is unknown. He may have been deported on one of the whalers that called from time to time, or he may have received his quietus on the islands he strove to upset.

Twenty-nine years after he had landed, John Clunies-Ross died. He is buried at a spot known as Pula Selma on Home Island and his headstone is a block of granite brought out from Scotland and carved by

Cocos masons. On it is the inscription: "Ross Primus; First King of the Cocos". His son succeeded to the title.

Although he had not achieved his great ambition of making the Cocos Islands part of the British Empire, he had by now roused a great deal of interest in his activities and in 1857—two years after his death—the islands were declared a British possession. By Letters Patent of October 13, 1873, they were placed under the control of the Government of Ceylon, and eight years afterwards further Letters Patent transferred them to the Governor of the Straits Settlements. In 1903, they were annexed to the Straits Settlements and incorporated in the settlement of Singapore.

Despite this, the Clunies-Ross family has never ceased to "rule" the islands. The grandson of the original founder, John Sidney Clunies-Ross, died last year as the result of delayed shock following a Japanese air-raid on the islands towards the end of 1944. Some years earlier he had visited Great Britain and married an Englishwoman. There were four sons and after a long search the "heir" was found to be serving with the R.A.F. In the near future, he will succeed to the romantic "throne" held by his father.

I have referred to the social system founded by the first "King of the Cocos" and, indeed, it was a scheme for social security existent long before the publication of the Beveridge White Paper for social security in Great Britain. It is based upon six chief principles, namely: employment for all; optional retirement at the age of 65 on half-pay; free medical attention; care of the fatherless and of widows; a high standard of living, and a simple code of laws.

At the age of fourteen every boy on the estate is placed on the payroll and works for two years as an apprentice in the workshops. There he is carefully watched and if he shows aptitude he is given some permanent job commensurate with his proved ability. If he is unsuitable for work in the factory, then he is placed in work on the roads, in the plantations, or with one of the hygiene gangs.

THE COCOS ISLANDS

Girls have the option of entering the estate's service at thirteen. If they wish to work, they too serve an apprenticeship and are then given employment according to their skill. Women, also, may work if they wish. In fact, a job of work for everyone who wants it is the rule on the Cocos Islands.

Much of the islanders' food is provided by the estate. Flour and chillies are supplied free; other foodstuffs are sold at cost price. Because of this, there is none of the undernourishment that is to be found in the majority of the communities of the east.

The islands have their own codes of laws, which are rigidly enforced by the four watchers who form the "police force" of the Cocos Islands. Marriage ages, for instance, have been fixed at eighteen for men and sixteen for women, abolishing child weddings. On marriage each couple receives a house and the heavy furniture free of charge from the Clunies-Ross family.

Morals are of the highest. Venereal disease is entirely absent—a striking comparison with other parts of the East. There is no

malaria, the only serious illnesses contracted by the islanders being asthma and bronchitis. A doctor from the Cable and Wireless Station, which was established on an outlying island in 1902, attends at the Home Island dispensary twice a week and all treatment is free. Local people have been taught the rudiments of accident treatment and the curing of simple ills, and work as dispensers.

There is one rule which is strictly enforced. While there is no restriction on islanders leaving the atolls to seek their fortunes abroad, they are not permitted to return. Because of this, the diseases that sweep the nearest large islands have been kept at bay and, equally important, domestic agitation has been absent.

These then are the little islands that form a distant outpost of the new Malayan Union. In them are to be found some of the happiest and most contented of the King's subjects, islanders who all agree with the sentiments expressed by the late John Sidney Clunies-Ross when he declared: "We are a terrestrial paradise."

A house at the edge of the lagoon





Left:—A field of Green Mountain potatoes on the Brinkman farm in the Danish settlement of Salmonhurst, N.B.

N.F.B. photo

Centre:—Dairying is an important Canadian industry.

Bottom left: — Growing sugar beet seed in British Columbia.

*Courtesy
Vancouver Daily Province*

Bottom right:—Tobacco planting.

N.F.B. photo

Top right:—Filling the drill hoppers with seed and fertilizer.

N.F.B. photo



Crops in Abundance

by T. H. MATHER



THE FERTILIZER INDUSTRY is only a hundred years old, while farming is as old as the race, but even so, the thriving industry of today had its origins deep in the past. Our farm ancestors of centuries ago, sometimes out of superstition, sometimes impelled by a dim grasp of fundamentals, practised a rudimentary sort of fertilization; for very early they realized the close connection between well tended soils and good crops.

The Egypt of Cleopatra and the Pharaohs was a great and wealthy empire chiefly because the Nile periodically flooded its banks and on receding left acres of fertile fields ready for sowing. The farmers of the Nile Delta, realizing the value of this rich mud, carried it to their fields above the flood level. So also, in their country, did the Chinese coolies of the Yangtze and other river valleys. And they went one step further by adding every bit of animal and human waste they could scrape together, so that their small rice paddies gave enormous yields. That these regions were able to support large populations in relatively small areas, is a direct result, first, of the original fertility of the soil, and second, of the efforts of the farmers to maintain that fertility. The farmers of antiquity had only the vaguest notion that they were feeding their

land—and themselves—with elements necessary for life, health and reproduction. And later when ground bones and decayed fish were added, farmers of the eighteenth century had little more understanding of the laws governing soil fertility than those of thirty centuries ago.

However, the scientific advance of the nineteenth century included agricultural science in its stride. In the opening out of this great new field, it was discovered that good soils contained certain elements—chiefly nitrogen, phosphorus and potash—and that they must be present in the soil in a form easily available to the growing plant. These momentous discoveries were announced in a report made to the British Association in 1840 by Justus von Liebig. Known as the father of agricultural science, von Liebig is to agricultural chemistry what Sir Isaac Newton is to physical chemistry. Nor was he content to prepare his report, deliver it and leave it at that. He and others of his contemporaries and successors who realized the implications saw something of a vision and were inspired by its possibilities. Famine and hunger need never be again if the minerals, literally mined from the soil by the growing crop, could be replaced in correct proportion and in assimilable form. So they turned caustic





tongues upon many of the agricultural theories of the day, clarified what was sound in them, exploded their fallacies with ridicule and expounded new techniques.

It must be admitted that many of the farm practices of that day were sound as far as they went, but they were far from adequate. Just before the middle of the last century (1850) shipments of guano had begun to arrive in England from South America. Guano, a source of both nitrogen and phosphorus, is an accumulation of the dung and decayed remains of certain sea fowl. Next, Chilean nitrates were imported, providing nitrogen for the first time in chemical form. The value of nitrates as a plant food was quickly apparent and imports rose from 8000 tons in 1830 (which were used for gunpowder) to 1,300,000 tons in 1898. With such tremendously increased demands, it became obvious that in the course of time these Chilean deposits would soon be used up. When, about 1880, some European chemists began to develop ammonia in quantity as a by-product of coke, a ray of hope entered into a really gloomy picture. But when by 1900 only about one-third of the world's nitrogen needs came from coke, and the remaining two-thirds from Chilean nitrates, the situation was really alarming.

It was in 1898 that Sir William Crookes made his doleful prediction of world famine after the next twenty-five years if new supplies of nitrogen were not discovered; for nitrogen is an element absolutely essential to the building of proteins in diet and to the formation and constant rebuilding of human and plant tissue. Life and growth are impossible without it. The curious and baffling factor was that the atmosphere contains 75.5 per cent nitrogen by weight and while plants, men and beasts were constantly

*Top to bottom:—Eight twelve-horse outfits disk-
ing stubble land.*

Oil pull tractors hauling five binders apiece.

A prairie threshing scene.



Above:—A field of potatoes on the Julius Hansen farm in the New Brunswick Danish settlement.

N.F.B. photo

Below:—Gang of "primers" working their way through a field of tobacco harvesting the ripe or "prime" leaves from each plant.

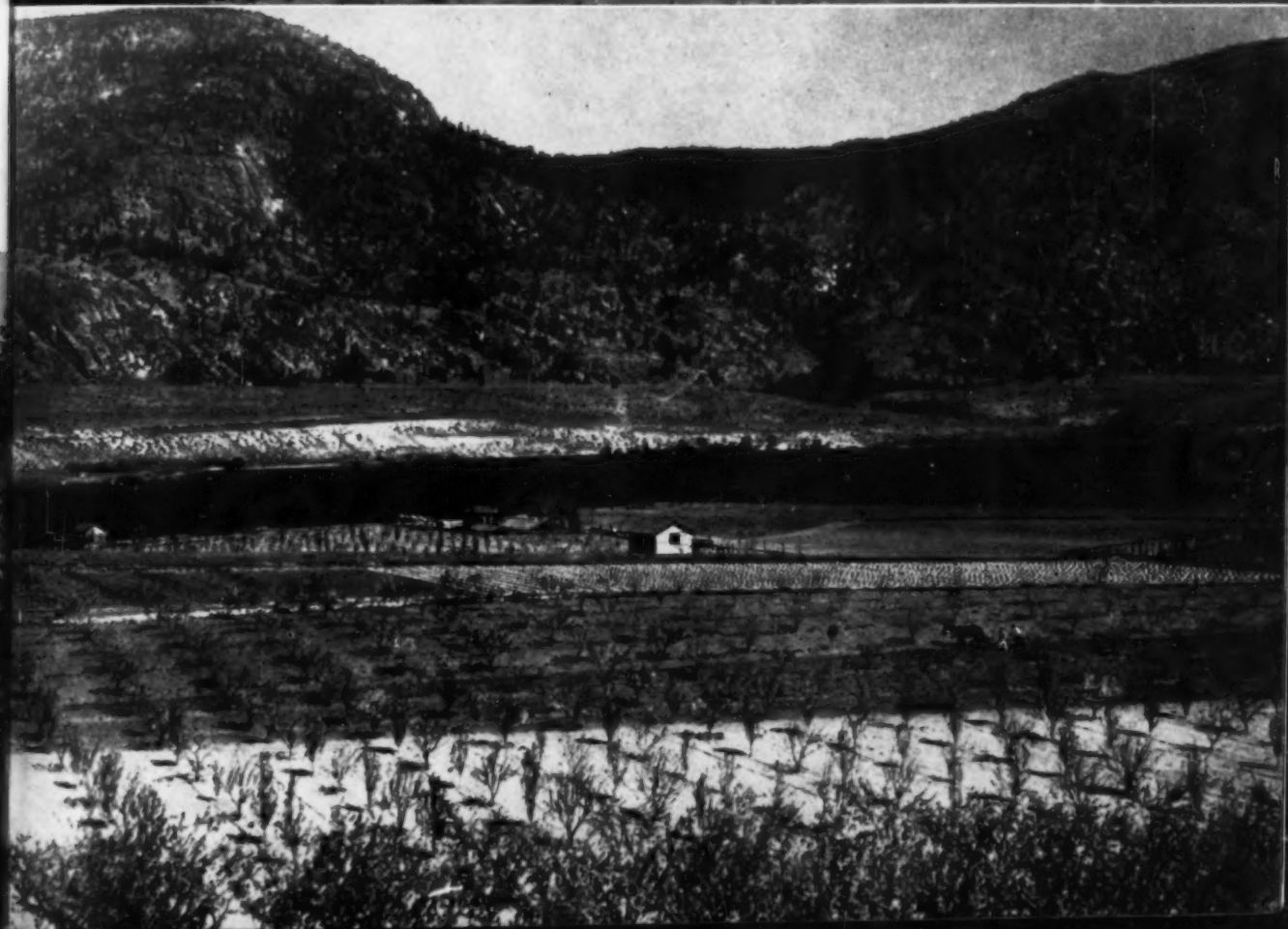
Top right:—A father and son ploughing on the hills above Baie St. Paul, Quebec, tilling the same soil that was first broken some 200 years ago by their forefathers.

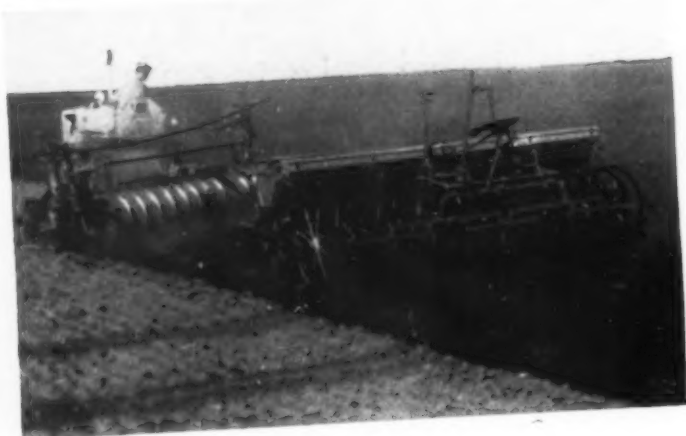
N.F.B. photo

Bottom right:—Orchards in the irrigated area of the Okanagan, British Columbia.

Courtesy Vancouver Daily Province







Above:—Seed drill with fertilizer attachment, showing the filling of the box from a sack of fertilizer.

Top left:—Breaking the prairie sod. Large tractor pulling seven ploughs.

Left:—A prairie farmer ploughs, cultivates, seeds and fertilizes in one operation.

breathing it in, only certain plants (leguminosae) could actually consume any part of it. Paradoxically, it appeared that unless some means were discovered for using the nitrogen in the air, the human race was to perish for lack of an element with which it was overwhelmingly surrounded. However, following 1900, methods of synthesizing nitrogen from the atmosphere were perfected and while the world remains, its people shall have nitrogen. The process of fixing atmospheric nitrogen by direct synthesis with hydrogen was developed prior to 1914 by Germany and this method was used to manufacture explosives by that country from 1914 to 1918. Other countries built synthetic nitrogen plants for fertilizer production in the period 1918-39 and in this Canada was no exception. The synthetic nitrogen plant at Trail, British Columbia, was established in the early thirties and it later provided an important nucleus of personnel trained in the technique of manufacturing nitrogen.

After 1939, nitrogen became a war material and there occurred a rapid and extensive expansion of synthetic ammonia plants. These plants, which provided explosives during World War II, are now being rapidly converted to the manufacture of ammonium nitrate fertilizer. The following table illustrates in percentages the relative increase in synthetic nitrogen as compared to by-product nitrogen from the coal and coke industries and Chilean nitrate nitrogen:

	1900	1913	1934	1940
Chilean nitrogen	66.6	55.4	6.9	5.4
Coal.....	33.4	37.3	18.6	12.0
Air.....		7.3	74.5	82.6

Note: 1900-1934 figures obtained from United States Tariff Commission Report No. 114—Chemical Nitrogen.

Phosphorus, as well as nitrogen, is vital to all life. The skeletal structure of man and beast, the very brain tissues of human beings, must have it; and for plants it is necessary to growth, ripening and seed production.

CROPS IN ABUNDANCE

While guano was accepted in 1830 as a source of phosphorus, the value of bones as a fertilizer had been recognized for a great many years. Farm writings of 1820-30 mention the application of "bone flour" and the trade in bones flourished to such an extent that in 1830 England imported 30,000 tons of bones from the continent. But bone flour was not readily soluble in soils and was consequently very slowly digested by the growing plant. One of von Liebig's most valuable recommendations was the breaking down of bones by use of sulphuric acid, making a preparation easy for the plant to absorb. Closely following von Liebig's work, was an Englishman, John Bennett Lawes, an agricultural scientist, but also an astute business man. In 1842, he took out patents covering the process of treating bones with acid. Later, he treated phosphate rock the same way and put on the market a preparation known as "Lawes Manure"—our first superphosphates.

Many improvements in production technique have developed since superphosphate

was first manufactured. Treble superphosphate, a concentrated fertilizer containing approximately treble the P_2O_5 contained in superphosphate is being marketed. Ammonium phosphates in which nitrogen and phosphates are combined in the one product have also been developed. But the original principle of treating rock phosphate with sulphuric acid to convert an insoluble rock to available plant food still accounts for the best part of the phosphate fertilizers marketed today. Much of the industry therefore is associated with large sources of cheap sulphuric acid—the principal reason for the extensive manufacture of phosphate fertilizers in British Columbia.

Large supplies of phosphate rock exist in many parts of the world—North Africa, islands in the Pacific Ocean northeast of New Guinea, Florida and the inter-mountain States. Canada contains some phosphate rock deposits both in eastern Canada and in British Columbia but they are either low grade materials or more difficult to process than rock used in present world trade. Consequently



Applying fertilizer to a tobacco crop.

N.F.B. photo

A well nourished crop





▲ Unfertilized

most of our rock supplies are imported.

Potash is as important to plant growth as nitrogen and phosphorus but its actual function is less easy to define. It is necessary to the healthy tone of a plant and is closely associated with the production in the plant of starches or carbohydrates. It was discovered in 1860 along with other salt deposits in the Stassfurt region of Germany. It is also found in the Dead Sea—again with other salts. A number of other deposits have been discovered and a large portion of the requirements of this continent at the present time are provided by the Searles Lake deposits in Southern California and by the Carlsbad deposits in New Mexico.

While the agriculturists of the old world were deeply concerned with problems of soil fertility, Canadian farmers on virgin soils gave the matter little thought. Mixed farming was usual and while the tradition of

Left column, top to bottom:—

Clover crop on University of Alberta experimental farm, Breton, Alberta. Check (unfertilized) on right, nitrogen fertilized on left.

Wheat crop in Alberta demonstrating earlier maturity with fertilizer; dark strips unfertilized were late maturing and were badly frozen.

Alsike clover plot near Edson, Alberta—a sulphur-deficient area—treated with ammonium sulphate. Check plot to left.

Clover on podzolic or grey wooded soils of the Edson, Alberta area. Plot on right treated with ammonium sulphate; check on left.



Fertilized and unfertilized corn from the Morden Experimental Farm, Manitoba.





▲ Fertilized

adding farmyard manure to the fields persisted, and while clover crops were grown to help supply nitrogen, the depletion of soil fertility seemed too far away to be at all disturbing. However, as early as 1875, farmers in the oldest settled areas were finding it increasingly difficult to make a decent living from their famished lands. And in the eighties an exodus took place of hundreds of discouraged farmers to the thriving industries of the New England states. Those who remained true to the land gave serious consideration to European findings on soil fertility. So it was established that on certain crops of good market value, money paid out for fertilizers brought profitable returns in increased yields.

Thus the industry began in Canada on special crops. Examples are the potato crops in Prince Edward Island and Nova Scotia, the apple crops in the Annapolis Valley, the

Top centre:—A Saskatchewan wheat field showing larger heads on the fertilized section of the field.

Right column, top to bottom:—

Clover crop on the University farm, Breton, Alberta. Plot on right fertilized with ammonium sulphate.

A barley crop. The fertilized area on left shows earlier heading.

Barley on the farm of J. Sutherland, Namao, Alberta, showing earlier and more rapid growth with fertilizer.

A wheat crop on the farm of R. Yates, Rich Valley, Alberta. Check plot on right.



Equal number of plants in each hand; note root development on the larger, fertilized sample.





tobacco and sugar beet crops in Ontario and Quebec, and other crops where higher yields and improved qualities derived through fertilization provided the kind of produce the market demanded. Within the last twenty years, fertilizer practice has extended to many other lines of farming and eastern Canada accounts for the bulk of fertilizers consumed in this country.

In British Columbia fertilizers have been

used extensively on such crops as the fruits of the Okanagan, hops, sugar beet seed, small fruits and truck crops of the Fraser delta and Vancouver Island. Many of the coastal soils are low in fertility and very acid, so they require heavy applications of complete fertilizers in conjunction with liming to correct their acidity.

Statistics* on fertilizer consumption in Canada for the year ending June 30th, 1945,

***"Chemical Industry Stable" by H. McLeod, B.Sc., M.C.I.C., *Chemistry & Process Industries*, Vol. XXX, 5, pp. 24-54, May 1946.



Okanagan orchard in bloom.

*Courtesy
Vancouver Daily Province*

*The high mineral diet
required by dairy cattle
can be supplied through
well-nourished pastures.*

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CROPS IN ABUNDANCE

place total sales to domestic users at 575,066 tons, a notable increase since 1927 when only 169,564 tons were used. Of this, 37 per cent was for use in Ontario, 26 per cent for Quebec, 28 per cent for the Maritimes and 9 per cent for the four western provinces. Canada's production of nitrogen and phosphate materials has kept pace with consumption, in fact our capacity for nitrogen production has outstripped consumption in recent years.

The prairies must be considered in a class by themselves, for they were opened up to farming much later than eastern lands and much more rapidly. By 1875 many of the

eastern farms were already old land while the only established settlements in the west extended along the rich Red River valley and into southern Saskatchewan. Farther west were scattered ranches and trading posts, and herds of buffalo cropped the short prairie grasses. Indeed an expedition (1857-62), headed by Capt. John Palliser, had recorded the warning that much of the far west was fit only for grazing. Then the railways pushed west and from 1900 to 1912 a tremendous and excited surge of land-hungry people poured into the plains. They grabbed at acres that needed no clearing, that yielded easily to the plough and that produced enormously. Heedless of any advice to the contrary, they turned the light prairie grass lands into wheat fields. And for this unwisdom, Nature was later to take a dreadful toll in terms of soil drifting and land erosion. The so-called brown soils need the matted roots of grasses to hold them in place and much of the area—land to which a plough should never be set—has now been returned to range under the able guidance of the Prairie Farm Rehabilitation Act. In addition to the brown soils of the prairie there are three other well-defined soil classes, each with its own problems of fertility.

Dark Brown Soil Zone—possibly the finest hard wheat lands of the plains. Situated in a higher rainfall belt, they contain more organic matter than the brown soils, and are consequently higher in nitrogen.

Black Soil Zone—supports more diversified crops than the other zones but it is important for growing wheat and also oats and barley. Considerable mixed farming is carried on in the higher rainfall areas. The black soils of this zone are rich in nitrogen.



Hop picking in Fraser Valley, British Columbia.

Highland stock farm west of Calgary. Fertilized wheat in foreground.



Grey Wooded Soils—(other than peat soils) are old soils in the sense that much of the plant food has been leached away. They are deficient in sulphur, low in other minerals, poor in organic matter and respond splendidly to fertilization. It is a noteworthy fact that much of the farm land in northern Europe consists of these so-called podzolic soils and with correct cultural management they are capable of constant and intensive cropping. In Canada the grey wooded soil areas are only sparsely settled but as population increases and demand for farm produce grows, they will become highly important.

The development of the fertilizer industry on the prairies makes an interesting story. It began with a large experimental program to examine prairie soils and discover their deficiencies—if any. The good farming soils had long been considered very fertile and any suggestion that they might respond to fertilization was scoffed at as the veriest “coals to Newcastle” idea. Earlier experiments in which fertilizers had been broadcast on grain plots bore out the belief, for they gave very indifferent results. However, just over the Rockies, large metallurgical plants at Trail, British Columbia, had expanded to such a point that by 1926 sulphur gases evolved from the smelting of sulphide ores had become a nuisance and studies were instituted on methods for utilizing the fumes.

The manufacture of chemical fertilizers using sulphuric acid was a possibility, particularly if the prairies could be secured as a market.

In Idaho and Montana to the south of British Columbia large phosphate deposits occur. Phosphate rock plus sulphuric acid spell fertilizer and an apt solution of the problem appeared to be at hand. A phosphate plant was the original venture, but

almost immediately the decision was made to install a nitrogen unit. Ammonium sulphate is made from ammonia and sulphuric acid and here was a further method for utilizing sulphuric acid.

Whether for prairie markets or for markets farther afield, rail haul would add a considerable expense to the farmer. It was realized that while mileage could not be reduced, fertilizer could be concentrated and a completely modern plant for the production of high analysis nitrogen and phosphate fertilizer was constructed.

Detailed plans to investigate the fertilizer needs of prairie soils got under way about 1928 when most of the prairie agricultural agencies, such as the experimental farms and soils departments of the universities, organized to study the problem. Although the prairies not long since had seen the days of oxen and ten-horse teams, by 1930 they had entered the era of power machinery and it was obvious that some mechanical method must be evolved for sowing the fertilizer with the seed accurately and rapidly during the rush of spring seeding.

Combination fertilizer grain drills of various types had been on the market since the middle of the nineteenth century, but they had been constructed to spread low grade manures. Consequently, most of them were found to be inaccurate in sowing the high analysis material being manufactured at Trail which required to be sown in small



Left:—Soil drifting.

Below:—Farm of J. R. Blades, Ohaton, Alberta.

Courtesy Country Guide

*Haying scene near
foothills in southern
Alberta.*



quantities if fertilizers were to be used profitably on 50-cent to 60-cent wheat. For experimental purposes some large combination grain drills were brought in and trucked around the country from farm to farm, applying different fertilizers in different proportions. Very few prairie farmers owned drills of this type and it was clearly out of the question to induce them to buy new fertilizer drills, particularly in the depression of the thirties. So although one attachment had been built in quantity, it was discarded and work was begun on another suited to recognized needs. Finally, an attachment was perfected capable of spreading with accuracy, quantities as low as 20 to 25 pounds per acre; not, however, before yet another difficulty was overcome, for the original attachment had been constructed to sow a finely-ground product. Mechanical problems and the caking of the fertilizer in the machine due to moisture, led to the final step. It was decided to manufacture the fertilizers in granular form and to modify the machine to sow the granular product. The attachment had also to be capable of being adjusted to use on the variety of drills in service at the time. The men who were implementing the program were astonished at the antiquity of some of the drills they were called upon to equip.

The experimental program to determine prairie soil deficiencies and their fertilizer requirements was started in 1928; it was stepped up in 1929, and by 1930 tests in

almost all sections of the plains were under way. These experiments demonstrated marked phosphorus deficiency. As a result, comparative tests were made between a phosphate fertilizer (treble superphosphate) and a compound phosphate and nitrogen fertilizer (ammonium phosphate 11-48). These tests proved decisively that the primary need of prairie soils was for phosphate but that small applications of nitrogen assisted in getting the crop away to an earlier start in the spring.

Experiments investigating problems in more detail have been carried on continuously throughout the intervening years and it would seem that nitrogen will play a more important role than had at first appeared, particularly on older soils or on soils that are being continuously cropped. Experiments were also run on the grey wooded soils in the north and in the irrigation areas in the south on such crops as sugar beets, peas, beans and corn. The conclusions arrived at as to the advantages of using nitrogen and phosphate fertilizers may be briefly summarized as follows:

1. Increased root development.
2. More efficient use of moisture.
3. Greater uniformity of growth—a boon to combine harvesting.
4. Increased resistance to plant diseases, insect pests, etc.
5. Less weed competition.
6. Improved quality and quantity of yield—average of 4 to 6 bushels increase per acre on wheat. That the addition of a few pounds of fertilizer per acre, properly placed, can bring about such benefits is simply a result of the plant being well nourished.
7. Earlier and more rapid growth, particularly if the season is late and cold.
8. Earlier maturity.



That grain crops can be brought to maturity in a shorter time by correct use of fertilizer is vitally important. For between seed time and harvest, the prairie growing season counts only about ninety days and grain crops not infrequently are caught by spring or fall frosts. Springtime on the prairies is chilly and growth lags because soil organisms needed to feed the newly sprouted plant are dormant. At this critical time, if fertilizer is available, the plant gets an early start, making ripening before frosts much more certain. Deeply impressed by this fact, an eminent agricultural scientist from Wisconsin remarked that we in Canada fertilized the climate instead of the soil.

Proper placement is the one condition upon which all these benefits depend. Because fertilizers move only slight distances horizontally in the soil and since the movement of phosphorus is very limited in any direction, it is essential that they be set down close to the seed. Broadcasting experiments failed to show results, simply because the plant

had first to sprout and establish a root system before it could reach the fertilizer. By then, possibly a weed seed had laid hold of it and was growing with energy, later to crowd out the striving grain plant. But when the seed and its food supply are sown in the drill row together, the small primary roots are nourished immediately after sprouting. This way, too, only the plant is fed—neighbouring weeds do not share or corner the advantages. For crops which are harmed by their seeds being in direct contact with the fertilizer, for example, sugar beets, corn, potatoes, peas and beans, other methods of distribution have been devised.

At present, extensive placement studies dealing with every variety of crops are under way on this continent. It is only a matter of time until the wider knowledge gained from their results will bring into the orbit of scientific fertilization many crops which, under older and less exact techniques, showed neither improvement nor profit from fertilizers.

At top:—Buffalo grazing on prairies.
Oliver Studio photo







Although present day prairie farming is largely associated with a wheat economy, a number of crops grown under irrigation are already pointing the way to a wider diversification. This is a trend typical of older countries as they have evolved from one-crop farming such as wheat or cotton to a sounder, more permanent type of agriculture. An excellent example of this development may be seen in the irrigation districts of southern Alberta where alfalfa growing is important. In rotation with beets, it improves the soil by adding organic matter and some nitrogen. But it is a mineral-hungry plant, absorbing large quantities of lime and phosphorus which make it valuable fodder for the winter feeding of range cattle. However, the land on which it is grown will become impoverished if not liberally supplemented with fertilizers. Sugar beets are, nevertheless, the most important cash crop and through sound cultural practices combined with fertilization, per acre yield has been materially increased during the last

ten years. Peas and beans for canning are other profitable crops. The whole area is one of the most prosperous in western Canada.

Still other illustrations of this trend may be seen in the non-irrigated lands of southern Manitoba where corn growing is increasing, and around Winnipeg where sugar beets are produced. Increased attention is also being given to mixed farming in the higher rainfall areas.

Diversification at the present time may be only in its beginnings, but with a growing population and the resultant markets, it could develop very rapidly. The spread of diversified farming should be encouraged because it is one of the best means known for controlling soil erosion, and soil erosion must be controlled if one of our greatest national assets is not to be wasted away. In this two-sided struggle which is constantly in progress—to save the land from erosion and to maintain its fertility—fertilizers play a strategic role.



At top:—Range cattle.

Canadian Cattlemen's Association photo

Left:—Sheep on fertilized pasture near Coaticook, Quebec.

The McGill Summer School in Geography

Stanstead College, Quebec, July 1st to August 15th, 1947

by G. H. T. KIMBLE

In recent years the lamentably low status of geography in Canadian schools has become of deep concern to educators. The writers of the Royal Commission report on education in Ontario, issued last year, doubted whether less attention was paid to the systematic teaching of the subject in any other literate country of the world. Clearly, Canada, whose past history and present fortunes stem so closely from its geography, cannot tolerate a continuance of this state of affairs with the profound ignorance of the basic facts of Canadian land and life which it predicates.

While in other countries summer schools have long been an effective means of promoting the study and teaching of geography, nothing of the sort has so far been undertaken in the Dominion. Fortunately, many Canadian teachers are already alive to the need for more adequate instruction in the subject. This is demonstrated in the fact that increasing numbers of them are going to the United States for summer vacation courses, and returning to their old universities to take up post-graduate work. That the need for such instruction will grow we see no reason to doubt. A pointer, significant of the present trend, is found in the fact that geography, as taught in the Protestant schools of Quebec, has recently been recognized as one of the options for admission to McGill University—a decision which should do much to increase the demand for geography specialists in the province.

It is our firm belief, however, that a summer school in geography should concern itself with more than the pedagogy of the subject. In view of the essentially social content of modern geography, such a school should prove to be of real value to students of the other social sciences, to civil servants (especially those employed in the Departments of External Affairs and Commerce) and, indeed, to all those people who seek a more perfect understanding of the relationships subsisting between man and environment. Accordingly, our lecture program has been designed on a broad basis. Apart from one or two strictly pedagogic topics (such as Practical Geography, and the Teaching of Geography), the schedule consists mostly of general interest courses, calling only for an elementary acquaintance with physical and economic distributions, and an above-average curiosity about places and peoples.

The provisional lecture list is given hereunder:—

- Geography of Population
- Town and Country Planning: the geographical background
- Economic Geography
- Historical Geography of Eastern North America
- The Habitable Earth
- The Geography of Canada, with special reference to the Northlands

Scientific Analysis of Scenery

Weather and Climate

The Political Geography of the New Europe

The Geography of the Orient

Practical Geography

The Teaching of Geography

The lecturing panel will consist of the members of the McGill Department, together with a number of visiting lecturers from other universities. These include Dr. L. Dudley Stamp, Head of the Department of Geography in the London School of Economics; Dr. Stanley D. Dodge, Professor of Geography in the University of Michigan and one of America's foremost authorities on the Geography of New England; Dr. Pierre Dagenais of the University of Montreal, and Dr. Griffith Taylor, of the University of Toronto.

From a professional point of view it would be hard to find a more suitable location for such a school than Stanstead. The adjacent Eastern Townships country is extremely diversified from the standpoint of terrain; it also possesses a wealth of differentiated cultural landscapes, each of them having distinctive settlement patterns and land use problems; while the proximity of the international border invests the whole region with a special fascination for historically minded geographers. Furthermore, there can be few institutions in Canada better suited to the purpose than Stanstead College. Not only is it most handsomely appointed with comfortable study-bedrooms (accommodating approximately 75 students—men and women), lounges, up-to-date laboratories and lecture rooms, it is also most centrally placed for field work on either side of the border, and for good measure, the Principal of the College, Mr. Errol Amaron (himself a McGill man), has energetically backed the project since it was first mooted.

Registration for the school is open to all students who can show satisfactory evidence of matriculation: admission to some of the courses, however, may be granted only to students already possessing university credits in the subject.

As far as possible, formal lectures will be confined to the morning sessions, the afternoons being left free for laboratory and field work.

The combined tuition-board-residence fee for the full six weeks' period is \$180. Thanks to the munificence of the Directors of The Canadian Geographical Society, two scholarships (each of \$250) have been instituted, and it is hoped that others will be forthcoming.

Requests for further information regarding the school should be addressed to:—

Professor George H. T. Kimble,
Department of Geography,
McGill University,
Montreal, Que.

ANNUAL MEETING OF THE CANADIAN GEOGRAPHICAL SOCIETY

The Society will hold its eighteenth Annual General Meeting in the Lecture Hall, National Museum of Canada, Ottawa, on Friday, February 21st, 1947, at 8.30 p.m. Immediately following the meeting Professor G. H. T. Kimble, Chairman of the Department of Geography at McGill University and a Fellow of the Society, will deliver an address entitled "Life on the Pioneer Fringe of North Africa", which will be illustrated by slides.



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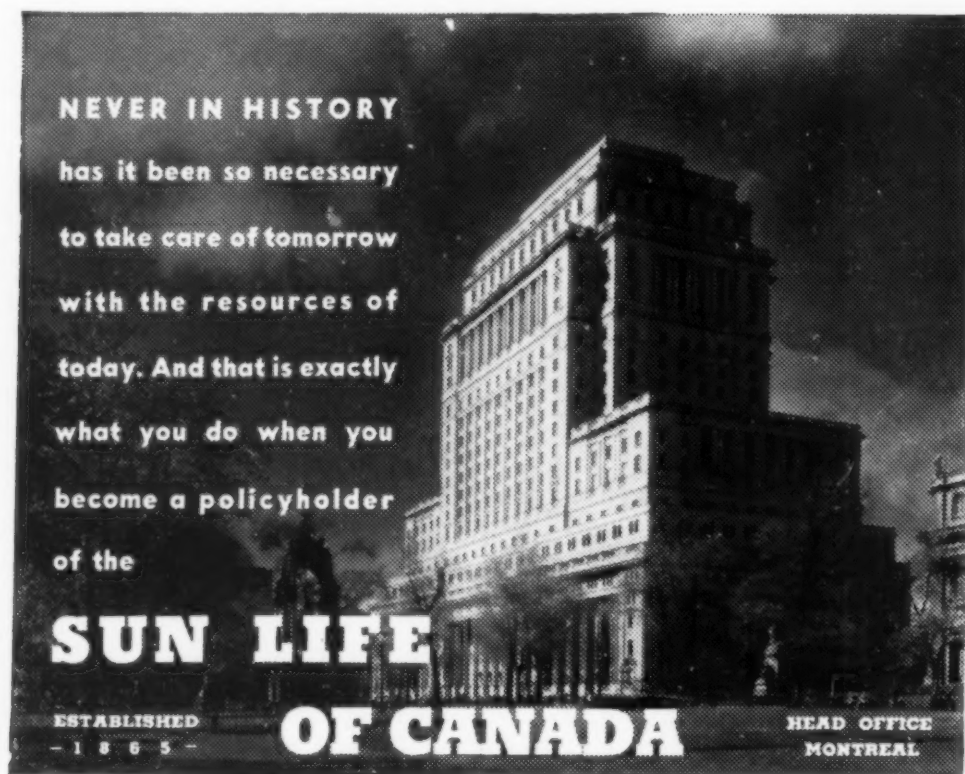
PLAYER'S NAVY CUT CIGARETTES

EDITOR'S NOTE-BOOK

William Richard Bird is a native of Nova Scotia, a descendant of Yorkshiresmen who settled the Cumberland County area of the peninsula in 1774. He was educated at Amherst Academy, served in World War I with the Royal Highlanders of Canada, and began writing in 1924, working on the staff of the *Halifax Sunday Leader*. He has written numerous short stories and novelettes, which have appeared in Canadian, American, British and Australian publications. Mr. Bird followed up publication of *A Century at Chignecto* in 1928 by many other books, his most recent being *Sunrise for Peter* (1946).

Sydney Moorhouse, F.R.G.S., writes about the Cocos Islands from first-hand experience gained on several visits made during the war. He served as Public Relations Officer with the R.A.F. in South East Asia and was mentioned in despatches. Born in Yorkshire, Mr. Moorhouse has published articles covering a wide range of subjects in many British periodicals. He is a member of the British Empire Naturalists' Association.

Dr. T. H. Mather was born in Ontario but received his degrees in agriculture and chemistry from the University of Alberta, and his Ph.D. in agricultural biochemistry from the University of Minnesota. His primary interest has always been in soils science, in connection with which he spent a number of years with the Provincial and Dominion Soil Surveys in Alberta and with the Federal and State Soil Surveys in Minnesota. After a period as Assistant Professor of Soils at the University of Alberta, Dr. Mather joined the Consolidated Mining and Smelting Company to assist in their fertilizer development program on the prairies. He also engaged in soil and water investigations in the Columbia basin and worked on the Trail smoke problem. Dr. Mather is a member of the Agricultural Institute of Canada.



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